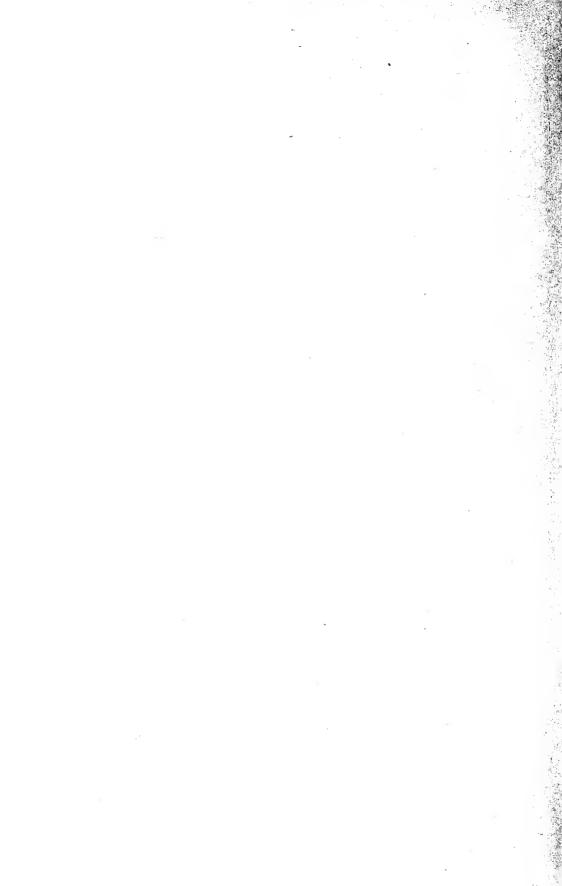


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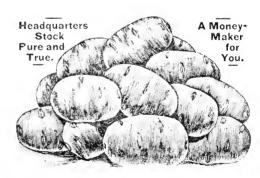
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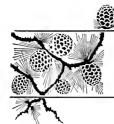
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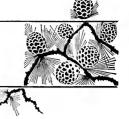
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ARCADIA



Senator McLean Presents a Flag to ArcAdiA.

A magnificent flag sixteen feet in length has been presented to The Agassiz Association by Senator George P. McLean. He writes that he searched all the principal supply houses in Washington to find one that he considered fitting for ArcAdiA. There were plenty of cotton flags but the Senator was determined on something better. Therefore in the early part of April he gave an order to one of the best flag makers in Washington for a special flag from the best grade of wool bunting. In the demand for flags it was a month before the makers could deliver it.

The flag will be greatly appreciated not only for its intrinsic beauty and high grade quality but for the fact that it is especially emblematic in its presensation in the present patriotic crisis by a bird loving and bird protecting Member of The Agassiz Association in the United States Senate.

Artistic and Novel Work in Sign Painting.

Mr. Earle Munson of Stamford has produced a rather remarkable piece of sign painting. At any rate it is remarkable for this country. This is a large sign in red background and black letters, with gilt borders for both the letters and the entire sign, showing the Japanese characters for "Little Japan" or, as the Japanese pronounce it, "Sho Nippon."

The original letter was made in Japan by one of the most skilled Japanese writers and forwarded to Sound Beach by a Member of The Agassiz Association. The sign is the central panel of a beautiful Japanese torii, the plans of which were drawn under supervision of Mr. Earle of A. A. Vantine & Company of New York. They were also submitted to the A.A Member

in Japan and were adapted in every respect to his suggestions. The electrical effects of the torii will be done by Fairbanks of Stamford. The construction is by Mr. Stephen I. Clason of Sound Beach.

A Spruce Edward F. Bigelow.

The pupils of the Meriden High School at their somewhat elaborate Arbor Day exercises this year planted a fine Norway spruce which was named the "Edward F. Bigelow" tree. The naturalist says he is glad to know that he is growing evergreen at least in Meriden.

Appreciation from Waterside School.

We especially appreciate the contribution of five dollars to the work of Arcadia that has come to us from the Waterside School of Stamford, together with a number of appreciative letters from the pupils, telling of their interest in nature and especially in gardening. The editor of this magazine recently gave a short talk in the assembly hall of that school and the letters from the young folks are so cordial and so eulogistic as to be extremely cheering and encouraging. The following is a sample of these good words:

Waterside School.

My dear Doctor Bigelow:

We enjoyed your interesting talk the other day in the assembly hall. Many speakers have come to our hall and made speeches but I think yours was the best. Many of the other speakers spoke very well, but their speeches were not as exciting as yours. It made me so interested that I could not take my mind off it, and was thinking of it all day. It was so thrilling I could hardly wait for the next thing to come. Every time I hear Mr. O'Neil say. "Doctor Bigelow will be here to speak to-morrow," I know it is going to be interesting.

The pupils, teachers and principal of the school wish to contribute five dollars to help you in your good work in ARCADIA.

Sincerely yours,

FRANK SEEMAR.

Motion Pictures of ArcAdiA at Colonial Theatre, Stamford.

Motion pictures, supplied by the Universal Screen Magazine, of the work of the honeybees at ArcAdiA are now being shown afternoon and evening at the Colonial Theatre, Stamford. A part of these pictures is devoted to

demonstrations in handling bees without glove or veil. The second section shows how to care for bees within the hive and how to take out the surplus honey from the hive. The third is a little bit of garden drama showing how refreshments with honey as the principal feature may be served to a caller. The cast of characters is as follows: Dr. Edward F. Bigelow, Miss Pearl A. Bigelow, Miss Nettie F. Bradt, Miss Mary Babula, Mr. Alfred Stokes, Secretary of the Stamford Y. M. C. A., and Scout Masters from Columbia University, New York City.

To Members and Friends of The Agassiz Association:

Over a week ago we suspended work for the summer on the construction of Little Japan. There now remain to be installed this spring a part of the electric lighting and some of the furnishings. We have been compelled by innumerable requests for use to complete at this unfavorable time enough of the development to make it available for this season. We believe that everywhere possible work should be suspended in favor of gardening and other phases of the food and war problems. We hope that after the autumn harvest Little Japan may be completed. The total cost will be about \$2,000.

Even the present assignments include parties from Stamford, Sound Beach, Greenwich, Darien, New York, Tarrytown-on-Hudson, Staten Island. The workers at ArcAdiA gladly give their services, but it is necessary to request members and friends

to give the construction.

Contributions received	\$478.50
Bills paid	459.74
Cash on hand	18.76
Pledges unpaid	20.00
Bills to be paid	
IMMEDIATELY NEEDED	83.13

Needed to complete the work, approximately, \$1,400.

Time and again this exclamation is heard: "Great work! But how do you find time

for it all?"

This is the secret. We have all the time in the world and know how to use it. Rockefeller and Carnegie have no more. But even if we had less, no one could give us one second. It's different as to money!

Respectfully and faithfully submitted,

THE AGASSIZ ASSOCIATION, Inc.,

Edward F. Bigelow, President

ArcAdiA: Sound Beach, Connecticut.

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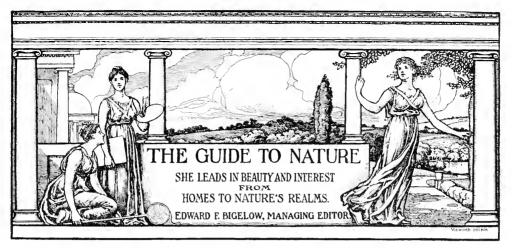
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Volume X JUNE, 1917 Number 1

In the June Woods.

BY WILLIAM B. HOOT, ROCHESTER, N. Y.
This is the time of the year when one loves to get out into the open, to steal away into the fields and woods, to relax from the strain of a busy career, to get down among the wild flowers, the blossoming shrubs or to listen to the song of a wild bird, all of which is healthful, restful and invigorating, but, if we do not know those wild flowers, those blossoming shrubs or that bird that is furnishing us entertainment with its sweet song we are still missing much that might contribute to our enjoyment.

Last June a friend of mine and I went to what is known as the Zurich swamp. It is located in Wayne county in the state of New York. It is one of those secluded hannts where Nature loves to display many of her most precions jewels, for in these days of ruthless hunting, when many a person will pull up every flower of a species, often taking roots and all, as so many of them do, even with the trailing arbutus, and then, if they begin to wilt before they get home, throw them away, indeed, Nature must, if she wishes to preserve some of her most precious gems, hide them away in secret places where only the few are able to penetrate.

We had a young lad with us who

acted as our guide. He said he was going to take us to the island first. Here we were charmed by those familiar notes of the sweetest and dearest of all our birds, the black capped chick-



CLUSTERS OF THE PINK LADY'S-SLIPPER.

adee, while farther away the island was musical with the flute-like song of the wood thrush. Under foot we trod upon the vines of the partridge berry loaded with their beautiful red fruit, fairly making rugs of red and green

covering wooded isles. Then as our guide led us on to what he termed the huckleberry patch, but which we could only think of as one of Nature's sanctuaries, for there, upon its carpet of moss, midst its shadowed recesses of dense cedar and tamarack, a scene of such charming beauty and loveliness was revealed that it made the heart of the Nature lover throb with joy and thrill with delight, for it mattered not in what direction we chanced to look, our eyes rested upon clusters or singles of the pink lady's slipper, charming and entrancing the beholder with their bright colors and the abundance of their numbers. The perfumed atmosphere seemed almost intoxicating with the delightful fragrance of the flowers of the pitcher plant, competitors of the lady's-slipper for vastness in numbers, while their odd shape and coat of red attracted the eye, and as we went on farther beds filled with the whorled pogonia, bowing their heads in prayerful attitude as if acknowledging a debt to their Creator, again filled our souls with joy, and then, as if we had not already drank to our fill, another scene opened up before us in which, intermingled among those pitcher-shaped leaves, the highly perfumed and deep tinted flowers of the pitcher plant, the charming pink of the lady's-slipper and the prayerful pogonias, were gathered into delightful clusters the bunchberry,



THE ODD AND DEEPLY TINTED FLOWERS OF THE PITCHHER PLANT,



THE BUNCHBERRY TURNING THEIR PALE FACES SUNWARD.

turning their pale faces sunward, grasping its stray beams stealing through clefts in the dense foilage reflecting their charm and beauty

All conditions seemed favorable to finding the showy lady-slipper but, if it were there, it succeeded in eluding us, for which we were sorry indeed, for we would have done it no injury, as we were hunting without a gun.

Having succeeded in getting pictures of all of the others, and as the day was drawing to a close, the "no-seeems," the Indians name for mosquitoes, were reminding us that even there we were not exempt from their molesting bites, and as our guide wanted to know if we could take pictures with those things all night, we most reluctantly took leave of one of Nature's most sacred haunts, for had we not been in one of the sanctuaries of the Most High and worshipped midst its most beauteous scenes?

Flowers.

Flowers from distant, sunny lands, Flowers from skilful florists' hands, Flowers in sheltered garden beds, Or clambering high above our heads; Flowers by brooklet, lake and pond, And on the mountain heights beyond; Flowers that overrun the fields, And that the winding roadside yields; Flowers amid the ripening grain, Woodland flowers, a dainty train; Flowers that greet us in the Spring, And those the Autumn changes bring: Flowers as white and pure as snow, Or blooms with brilliant tints aglow; In all this wondrous world of ours, What can compare with nature's flowers? –Emma Peirce.

The Exodus from the Farm.

BY EDITHA S. CAMPBELL, ERIE, PENNSYL-VANIA.

From all quarters comes the complaint that the vounger generation is leaving the farm. About us lie abandoned farms once rich in production, now with field after field running wild, the boys and girls having gone to the city, "where you git more money." Efforts are being made to bring them back, back to the biggest work a man can do, to work with the life forces of nature, in a workshop not made with hands, but designed and built by the Master Architect, painted by the Master Artist with colors and tints no finite hand can copy, whose roof is a vast illimitable space, whose furnishings are the wonders of Infinite Wisdom. Working with these wonders and comprehending the methods used and learning to cooperate with the Creative Power is the work of the boy and girl that stay in this big out of doors and

work for the Great Employer. The agricultural courses in colleges and rural schools are helping to bring the boys back. They learn that when farming is done scientificially, like other work, the results are greater and better. In one little rural school a big effort is being made to open the boy's mind to the fact that farming is one of the most important occupations. Manufacturing and professions may bring in larger monetary results, but if the farming stops what will become of the city? Back of all industries must be food and the food must come from the On the other hand there is scarcely a science that is not connected with the farm. Geology, the history of the soil; chemistry, how to treat that soil; ornithology, from which the farmer must learn the value of birds to his crops and orchards; entomology, showing him what insects are of economic value and what injurious; botany, what the flowers, trees and shrubs are to him; zoology, that he may know the animal life about him, and biology, that he may breed better stock. Now as a background, add the beginnings of the insect, plant and animal. Take the upper grade which in a rural school seldom goes through the rural high school and give them a simple course in plant life and in biology by means of the microscope and simple laboratory tests, and you will have the child mind awakened and interested in the growing things about him, a new-born dignity within him and a reverential respect for the simplest things of nature. He will know somewhat of the great life histories and some of the wonderful laws of adaptation and natural selection that lie back of them.

I have seen this proved in a certain little rural school where two years ago the boys were only waiting for their time of departure. Now they feel a new power within them and, where only one boy remained in the corn club organized that winter, this fall the boys and girls carried off fourteen county prizes, amounting to almost fifty dollars and earned twenty dollars in their own round up. The parents and school directors woke up and the little, old one room schoolhouse grew this summer into a beautiful building with two rooms and an auditorium for community meetings while twentyseven boys and girls are enrolled in clubs for cultivating corn, potatoes, poultry and domestic science. They are working eagerly for still bigger results for this year. Charts of the birds useful to orchard, garden, meadow and woods hang on their kitchen wall. The birds, as they return, are guarded and cared for, the boys knowing that they are the biggest assets for the coming crops. Simple science stories in all the sciences of the farm are being told, illustrated by slides and the microscope when necesary, and instead of the farm home being a place of dissatisfaction it has now become the center of a new and wonderful world.

Dandelions.

Fair nature's gold is prodigal,
Spread broadcast at our feet;
How cheery is its presence there,
Just after snow and sleet!

How like the sunshine after rain,
The morning after night,
The radiance of the myriad blooms,
Reflecting all the light!

From golden discs to silver globes
They turn before our eyes:
Could we but know the process fine,
We would indeed be wise.

-Emma Peirce.

A Successful Snake Hunt.

BY GAYNE T. K. NORTON, NEW YORK CITY.
The first formal hunt of the Reptile
Study Society occurred on Saturday,
April twenty-first. For the twenty
odd hunters and certain toads, frogs,



Photograph by Gavne T. K. Norton.

MORTEN McWHOOD AND THE THREE-FOOT BANDED WATER SNAKE THE BOYS NAMED "SNAPPY."

Hudson Hawley, of "The New York Sun," was an interested but diffident spectator.

turtles, salamanders and snakes, the day was notable—a day ideal for the hunters. The day of all my days out of doors was the day of our first snake hunt. We met at Bloomfield, New Jersey, and walked out of town. For a while we skirted the old Morris and Essex canal and gathered a few cocoons. The boys with us, a few Scouts, all members of the society, were the personification of joyful anticipation.

Twenty minutes on the towpath brought us to the first swamp. In inches of ooze we spread out, hopping from hummock to hummock over bushes and around stumps. In no time, frogs, a turtle and some brown salamanders were ours. Morten Mc-Whood, a young man from Newark, scored a banded water snake three feet long. One quick, deft grab had done the trick. The snake, probably not

thoroughly awake after its hibernation, looked the worse for the long nap; it still wore last summer's skin, and two inches of tail were missing, but its agility was surprising. For half an hour we hunted earnestly, each trying to keep a few boys quiet. But no other "wiggler" rewarded our efforts.

Luncheon was devoured after a delightful walk through the budding spring. To our botanists this was three hours of joy and rivalry; to us common snake hunters, it was the pleasure of being out of doors. Much was collected. A large meadow, criss-crossed by irrigation ditches, looked good, but revealed nothing. Then we had a surprise. The camp site had been well trodden, when at its center a DeKays snake was captured. The little fellow was in fine fetter and friendly—to me our choice catch.

Allen Samuel Williams is probably known to most of my readers. This was the first time that I have enjoyed the privilege of being in the field with him. He has a boy's enthusiasm and a knowledge of the outdoors verging on the uncanny. He is eminently fitted to lead the boys in the educational campaign that the society is conducting with reptiles as beneficiaries.

With trying exactness Mr. Williams ranged the party in a semicircle and



ALLEN SAMUEL WILLIAMS (AT LEFT) WITH LARGE PINE SNAKE, AND THE WRITER WITH BULL SNAKE (AT RIGHT).

Both specimens are great pets. The species are of value to the farmers as rodent destroyers.



Photograph by Gayne T. K. Norton.

MEMBERS OF THE DITMARS CLUB OF THE REPTILE STUDY SOCIETY WHO TOOK PART IN THE FIRST FORMAL HUNT.

Nine snakes, representing three species, and a number of frogs, turtles and salamanders were captured. The seven snakes shown in the illustration are from private collections and perfect exhibition specimens.

The Director, Allen Samuel Williams, kneeling at right, is justly famous as an all-round outdoor man and writer.

unlocked his grips. The white specimen bags were drawn forth and eager hands were outstretched as the string-were removed. In quick succession seven perfect specimens were apportioned about the group: a bull, a pine, a boa, a red bellied, a king, a garter and a ribbon.

It began to look as though the hunt were over, so reluctantly were the pets given up. But we got under way finally, after christening an unresponsive turtle Desdemona. Almost immediately another water snake was found but it escaped.

The most exciting capture was made by a boy. Mr. Williams and the lad saw Natrix fasciata sipedon—the correct name of our common water snakeand it immediately chose to escape between Mr. Williams's legs. Like a good Scout, young Ogden grabbed the reptile and held it, though bitten, and the largest snake of the day was subdued. (The danger was nil. We knew our country and all its snakes. Where poisonous snakes are likely to be encountered, no chances are taken.) During the remainder of the day specimens came fast, some by stick, most by hand, some nine in all and representing three species.

George Von Buehren, herpetologist, brought some snakes from his private collection and gave a demonstration of forcible feeding. An informal hunter and guest was Hudson Hawley, a reporter on the staff of "the New York Sun," assigned to the hunt by his city editor. At best Hawley was diffident though enthusiastic; he enrolled. A motion picture camera man was chasing us in a little Ford, but, unfortunately, did not find us. Several New York papers printed stories of the hunt; it created quite a stir, and much publicity is promised for the next "outing."

The Reptile Study Society, though young, is already national, having clubs in many states and members of national note. Its purpose is to save the snakes.

A Good Joke on a Money Handler.

One of the most efficient men that stand behind cash windows in a prominent bank in Stamford caught the garden fever, but his fancy did not run altogether to vegetables. Having a taste for the beautiful, he put in a liberal supply of bulbs and wondered why they were so slow in doing something. After waiting for two or three weeks, he investigated them with a spade, and found that they were growing but it was taking them some time to overcome the curvature necessitated because they had been planted wrong side up. The genial banker said, "There is something to be gained anyway." He had the fun of planting them all over again at the expense of only one set of bulbs and, after all, it is the planting that counts nowadays.

Observations in the Farmyard. Glen Ridge, New Jersey.

To the Editor:

To those who come in close daily contact with the denizens of the barnyard, many interesting idiosyncrasies and evidences of "individuality" are reyealed. This is particularly noticeable by children, who are quick at observing the peculiar traits and differences of physiognomy. One little girl whom I knew gave the names of her uncles, aunts, cousins and neighbors to the chickens in which she insisted that she could trace resemblances of expression or of personal characteristics. This may seem a bit fanciful, but the child that is blest with the gifts of observation and imagination is happy indeed!

Maternal devotion is the most beautiful and fascinating source of interest, but it is an instince that we accept as the most natural of all. What is more rare, however, or harder to discover, is evidence of mutual attachment, something more intimate than the "social" instinct which is so strong among all animals. I hesitate to call it "friendship," but it is something akin to that.

The objects of my observation were two ducklings and two chicks that had been hatched by the same hen. four were the only survivors of the illassorted family, and were a source of great distress to poor biddy that could not get used to the aquatic performances of the ducks. She evidently felt that she had made a mess of it, and she abandoned her family prematurely, so that I had to adopt the orphans. They turned out to be male and female, after their kind, and thrived beautifully. When gardening time came the flock was confined to an enclosure, all but the ducklings as they are not "scratchers." Instead of wandering afield they waddled back and forth outside the enclosure, their two little imprisoned mates following them from the inside, the four making frantic efforts to join one another and uttering plaintive cries. This became so distressing that I released the chicks. This was followed by great demonstrations of joy. ducklings were particularly emotional. They caressed their gawky, long-legged little mates with their bills, making tremulous motions and gurgling sounds

of evident delight. Turtledoves could hardly have been more sentimental. They enjoyed many idyllic days together, and at night, instead of perching with the chickens, the chicks crouched on the floor with their webfooted comrades, and whenever I penned up the chicks they and the ducklings kept close together on opposite sides of the fence. One day a duckling fell into a post hole, and I discovered it only after noticing three faithful companions hovering around the hole for a long while, until I went to the rescue.

The vicissitudes and tragedies of the barnyard broke up the devoted quartet. First the duck was sacrificed, then the rooster, as he was a pariah among his kind. We endeavored to make the pullet see the error of her ways, but she grew up to be "emancipated." challenged and fought the young cockerels, and finally she learned to crow! She was the first and only crowing hen that I have ever met. Her crow was a squawk, but it seemed to give vent to her rebellious spirit, and she always crowed at earlest dawn, out in the open. before any of the other chickens were about. The sun never rose to her call. which no doubt added to her bitterness. As she gave no promise of pulchritude or of favorable domestic qualities, she too was disposed of. The poor drake visibly pined, until he was put out of his misery and so ended this little lowly drama of the barnvard.

As a boy that loved all kinds of animals, I could relate more experiences, but such tales generally lead to garrulity, and should be curtailed!

Louis Cortambert.

The ordinary aquarium goldfish breeds from four to eight times a year, and produces from a few hundred to several thousand eggs at each period.

A June Night.
"What is so rare as a day in June?"
Except, in June, a night,
With the sleeping lake a silver plain,
In the spell of the moon's soft light.

And as we cleave its shining length,
Adrift in our canoe.
It almost seems that Heaven itself
Is opening to our view.
—Emma Peirce.

How to Keep Young.

BY MISS MARY A. ROE, WATERTOWN, NEW YORK.

Many men and women, no longer able to attend to the daily routine of business or of household cares and having no interests in reserve to fall back upon, gradually settle down into a



MISS ROE IN HER GARDEN.

dreary, helpless old age. Their thoughts and conversation are occupied with trivial gossip and the details of their maladies, real or imaginary. If they would begin earlier in life to interest themselves in something worth while, outside of their daily surroundings, they would keep their minds clear and active, and with increased zest be able to devote their leisure, when it came, to these pursuits and would remain more vigorous in mind and body

I am a woman not far from eighty, and my chief interest has been and is still a love for nature study. But not as a specialist. Any one can find enjoyment in observing the marvelous beauties of God's creation, if our eyes are trained to look for them.

One of the greatest pleasures of my life came more than thirty years ago, when I had an opportunity to glance into the world of the infinitely little through the powerful lens of a solar microscope.

A friend in Los Angeles, a teacher of

the natural sciences in a college there, had the use of this microscope, the largest I ever saw.

The windows of her room were covered with close wooden shutters, in one of which was a round hole that held firmly the large lens of this microscope exposed to the direct rays of the California sunshine. On the wall opposite was a white curtain, such as is used for illustrated lectures.

For the first time I saw one of the one-celled *amoebae* that scientists tell us were the first forms of animal life that appeared on this old earth, and that myriads of them are still living in our pools and streams.

From some water in a pool near-by my friend placed two drops in the center of a glass slide, covering it with a thin convex glass which held the fluid securely when in position to be magnified. Then on the screen I saw a small pond, with many curious forms moving rapidly, dividing and subdividing, each division becoming a perfect *amoeba* until the heat of the sun on the large lens evaporated the water and destroyed their life.

We also made a study of those forms of vegetable life that are called *diatoms*. These were upon seaweed gathered on the Pacific coast at San Pedro, near Los Angeles.

We cut off very small bits from the seaweed and placed them under the magnifier. On the screen was thrown glittering forms, some crescentic, others oval or oblong, in colors like the ruby, emerald and topaz. They had a hard, flint-like shell enclosing a semifluid substance resembling the white of an unboiled egg, called protoplasm, that Professor Huxley says is the "physical basis of all life."

My friend found some earth near the ocean that looked to me like chalk but which she said was composed of the fossil shells of these diatoms. She exchanged some of this diatomaceous earth with scientists who were making a special study of these forms.

One day she said to me, "I have received a slide that you will be glad to see."

When it was placed in the microscope, on the screen was reflected a Latin cross, about two feet in length, made of circular fossil diatoms, the larg-

est in the center, cream white with fluted edges, bordered by three bands of blue shading from dark to light. The next shell on each side was smaller with bands of golden brown. The man who sent this slide wrote that he had worked over it for hours, with strong magnifying glasses over his eyes, and had manipulated the diatoms into position with a hair from a cat's whisker, as only one fine enough for the task.

I brought one day a lump of chalk that had been picked up below the cliffs at Dover, England. My friend scraped off what she could hold on the blade of her penknife. When it was magnified upon the screen, I counted twenty perfect shells among many broken ones. Who could estimate the number in that small lump alone? Yet the Cliffs of Dover, made of this material, can be seen on a sunny day at Calais across the English Channel.

One other instance I will give of our experiments, illustrating the difference between man's handiwork and God's. The smallest needle that we could buy, when reflected on the screen, looked like a crowbar, the point as blunt, and on three sides jagged edges that were raised apparently a quarter of an inch above the rounded surface, while the sting of a honeybee terminated in a point so fine I could hardly see where it ended.

After returning to the East, I experimented with the low forms of life at many points on the Atlantic coast, finding new shapes and colors, for they abound in all parts of the world, in some regions abundantly where for ages the fossil remains have made strata of immense length and depth.

The most beautiful exhibition of minute Infusoria that I ever saw occurred one dark night at Seal Harbor, Mt. Desert, Maine. Returning with a friend from a call, I noticed that a heavy surf was entering the cove, which is shaped like a horseshoe, with rocks on each side and a sandy beach in the center. As each wave rolled in and flowed around the curve it was like a long flash of lightning.

"Oh," I exclaimed, "it is the phosphorescent Noctilucae that I have heard about. Let's go down on the beach and see this strange phenomenon closer."

When we plunged our hands and

arms into the waves and held them up they looked as if they were on fire, yet there was no heat.

These minute forms average one hundred and sixtieth part of an inch, yet a few could be seen with the naked eye and were about the size of a small pinhead. The Notilucae night lights of the ocean, like the fireflies on land, have their gleam intermittent, but they are in such immense numbers that the ocean in the tropics often seems covered with liquid fire. I never saw them again on the New England coast.

But I am only an amateur microscopist, and nature reveals so many wonders that I need more than one hobby. Each spring comes to me like a new creation. The first notes of the robins and the bluebirds I hail with delight, and as the bird chorus increases day by day there are sure to be strangers among the singers whose acquaintance I am glad to make.

Then comes the grand procession of flowers, brought out by the warm rains and the spring sunshine; and although I can no longer tramp the woods or climb the steep hillsides in search of them, younger feet and hands often bring them to my door.

When I am shut in by wintry storms, charming books reveal to me through the eyes of noted travelers the fauna and flora of other lands.

So if we progress in some new interest as we advance in years, our days will be less monotonous and our lives less liable to become a burden upon others.

Our various "water bugs," it has commonly been thought, lives entirely on animal food—daphnia and other small crustacea, mosquito larvae, water in-ects and even an occasional fly that chances to fall into the water. A recent study, however, shows that the food of these creatures is, in part, vegetable. The common "water boatmen," for example, eat diatoms, euglenas and many other of the unicellular plants. The whole subject is one that will repay the attention of any good observer.

A new insect enemy of the peach, apparently introduced from Japan, has made its appearance in the District of Columbia.

Mouse Meat for Roosters.

BY CHARLES H. CRANDALL, STAMFORD, CONNECTICUT.

At a recent meeting of the Farm Bureau a poultry expert from upstate advised farmers to select their eggs for sitting from their own flocks, following suggestions of his, in order to get fowls of great egg producing capacity. He especially laid stress on crossing the choicest hens with the sauciest cockerel on the place, one full of fight and general bumptiousness.

Well, I am entering a Rhode Island red cockerel for the prize in these qualities, for he did under my eyes what I never saw a rooster do before. I was startled by sudden squeaks and saw my up-to-date rooster battling with a large field mouse. He chased the mouse, striking it with his beak, and soon despatched the rodent, called up the admiring hens and they soon dissected and swallowed the meat. Of course I shall start a new strain of reds for which you will not have to purchase bone or meat rations.

Henry Ford's Response.

Men who do big things have a faculty of keeping it up. Henry Ford has granted the British Government the right to make his tractors ad lib., waiving all patent rights. This is a big patriotic response to the pressing needs of the British Government to increase its food supply.

As for America, Mr. Ford is preparing to turn out thousands of farm tractors by the first of August. He is not only making tractors under high pressure at his Dearborn tractor plant, but he is preparing to turn over both his tractor plant and his automobile plant to the United States Government should the need arise.

Germany has cause to beware of some of our eminent pacifists. An American who loves peace and does big things in peaceful times is 999,999 times out of 1,000,000 an American first, last and all the time.—Country Gentleman.

For cultivating colonies of Euglena quince seed jelly is especially recommended. The seeds are boiled and the thick juice strained through a sieve to remove particles of seed. The jelly is then diluted with water.

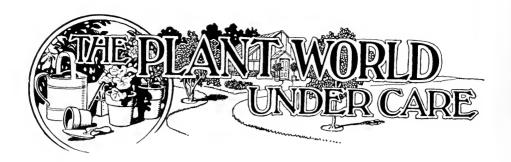
Daisies.

Daisies, far as the eye can see, Daisies, a great white company: With ray-like petals, and hearts of gold.

What starry beauty do they unfold!
—Emma Peirce.



"DAISIES, FAR AS THE EYE CAN SEE."



A War Garden.

BY HENRY BELDEN, DYKEMANS, N. Y.

We now see that we made a big mistake, by not doing any fall plowing, but we had no intention of putting in a garden this year. We had laid out enough work-ditching, grading, fencing and fixing-to say nothing of tree spraying, fruit picking and having, to keep our one man, and an occasional team, more than busy. And thenthis war came, and this garden enthusiasm, and the desire to do our little "bit," if only to provide for ourselves and our workers, for-we figure, that if everyone, who can, takes care of themselves vegetabily, it will save that much to the general store.

The reasons why our ideas do not assume a more ambitious form, having considerable acreage at command, is because the farm abounds in rock and ledge.—very picturesque but provocative of profanity when attempts are made to the cultivation of it. And, then, because of the high cost of feed, we have no stock or horses, and have to hire and the cost of an occasional team is quite an item of expense. We are paying a dollar more this year than last and may have to pay still yet more and yet face a minimum price on our product—if we are forced to sell it.

And there is but one team, in the neighborhood, that we can depend on. Upon consideration, this statement is open to revision, for we had the promise of that team, and a man, for last week, and they came not!—and we can get no definite promise for the future, and we have two bushels of seed potatoes awaiting planting, and, although the Garden has been plowed, it has not been disked and we are forced to "fork it over"—which is no small task. Soon we must do our first spraying—some sixty trees—and much routine work

must be accomplished by one man and the writer—one absolutely untrained and, in some ways, unfitted for much of the labor entailed.

And so, to be sure that that garden will not be irreparably damaged by May frosts, or droughts,—there are numerous boxes filled with sawdust, in the cellar, and in them are all kinds of garden seeds, and some 500 plant food tablets are awaiting immersion, and the day will come when those sawdust boxes will be transferred to the "Sunparlor"—(a very warlike measure, we assure you) and our seedlings will be fed, literally, by the spoonful.

I can hear some one say, "what is he talking about,—don't he know anything?" Yes, kind reader, he knows just one little thing, and he means to work that to the limit—this year—but what said limit is, he, himself, don't know. (Information gladly received).

And this is what he knows, and how he learned it. Once upon a time, when Easter was very late, and the spring still later, the writer was in a hotel in a place where blossoms should have been, if nature had had a chance. And there were seventeen children there, and they were the kind of children that have dancing eyes and quiet feet, and the writer said within himself, 'there shall be green things growing on Easter morn',—and it was so-green things agrowing in eggshells! Twenty-four eggshells set in rows, filled with sawdust and spoonfed with plantfood. Don't ask me what we grew—it was so long ago-(but I can tell you how the children looked, if you wish to know), but the next year a more practical attempt was made, and some lettuce and parslev survived to find its way into a garden, and thrived there, - and that is why there are sawdust boxes in the cellar.

And not only did the wee children show great interest in the Eggshell Garden, but many others, of older growth, made regular visits to the then novel experiment. And one day—the day of the transplanting of the nasturtimus—three ladies insisted on seeing all there was to be seen, and so, one nasturtium was taken, by the scuff of its neck, and pulled out of its sawdust bed, and its curled up roots spread out, washed in running and handed around by those three ladies, while the pot of earth was being prepared. Punching a hole in the pot of poor earth the nasturtium's roots were washed into it by the use of a little plant food and the earth was pressed down and the pot set aside, in a shady place, and for two days it was fed.—after that, watered, and it grew gloriously. Just try a similar treatment-three interested ladies and a cold water faucet—on any earthgrown seedling, and watch the results.

They say that plant food seedlings are sturdy because 'they never have had to work for a living'—they have developed nothing but primary roots, and those are extensive—and there are no delicate, sensative, shockabsorbers, to be shocked, in this first transplanting, and, consequently, no setback, no nervous derangement—when transplanted and assisted (with plant food for two days) they easily provide a soil sucking system of great power. They have never had to fight with weeds yet they are well provided for life's battles by intelligent nature.

We are seeing many of the sheltered of the human family taking hold, in a most marvelous manner, when transplanted from an easy life to rougher conditions, under the stimulus of patriotism mixed with necessity. All they seem to need is intelligent direction to produce a remarkable crop of humanity.

There are going to be many late gardens this year and while we are struggling to get vacant lots prepared why not make a 'saw dust preparation'? Many a sunny window can be utilized by those who never intend cultivating the soil. They can grow a crop of "universality" with their seedlings, and contribute to the good of the community.

It is a great deal to ask of children to commit their seeds to the cold earth and then wait in patience while (what we call) weeds appear. And it is hard on the seeds. Why make them struggle when we know a better way?

The writer used two teaspoonfuls of plantfood—one at night, and one in the morning—for each seedling, and as six tablets make one quart of solution and 30 tablets cost 10 cents, we have a supply for 20 seedlings for 20 days at a modest outlay. Larger quantities may be obtained at a reduced rate.

If one uses eggshells the skin must be rubbed out—a somewhat tedious process—but it will mold, otherwise, and the plantfood requires a strictly neutral medium, for it supplies all the plant's needs. And when the second leaves appear, or as soon after as possible, transplant to soil (convenient paper pots can be obtained for this purpose) and supplied with plantfood in generous quantity (double the dose) for two days, after which water carefully but not too much. And, when time has been allowed for plant to become well established, it can be set out in perfectly prepared—'up to the minute',-soil by merely tearing off the paper envelope and so avoiding the nasty knocking jar or clay pot planting or the dangerous root exposure of box planting.

The nervous shock sustained by seedlings as ordinarily grown, in the first transplanting, due to the existence of the delicate secondary hairlike rootlets, is avoided by the plantfood method, and if ordinary care is taken in setting out, no setback should be experienced and every plant in the row will be worth cultivating and a full row makes the work worth while.

The possibility of cultivating the soil up to the last minute, and the absence of weed warfare during germination gives a wonderful theoretical start, to say the least, and when frosts are late, or preparation is delayed, the plantfood method permits a paralleling of the enemy's trenches—a working the sawdust while working up the soil, or watchfully waiting.

And in this connection, let us say, that it is to the Germans we owe this plantfood—we may say that we have a

German working in our garden this year—for "The Perfect Plant Food" we use was invented by Prof. Julius VonSachs.

And it looks as if we were going to return them a bullet for their beans.

Palm Branches Cover this Tree House. BY ALBERT MARPLE, TROPICO, CALIFORNIA.

A novelty in the way of a tree house has just been completed by a youth living in Los Angeles, California. This house, as may be seen in the illustration accompanying this brief sketch,



A NOVEL PLANT DECORATED TREE HOUSE.

has been erected at about the center of this large dead eucalyptus tree in the yard at the rear of this youth's home. It is eight by eight feet in size, and the most unusual thing about it is that it is covered with pretty palm branches. The framework of the house is made of two by four timbers and one by three strips, to which the palm branches have been nailed.

Entrance to the room is gained by means of a trap door in the floor near one wall, a board with cleated steps leading up to the house. There is also a trap door in the roof out of which the owner climbs when he wants to ascend to the top of the tree, which has been equipped with "cross piece" steps.

In connection with this house this enterprising owner conducts an elaborate wireless outfit and private athletic grounds, consisting of jumping boards, trapeze, etc.—"The Schoolmate."

Are Rural Communities Ignorant of Nature?

A letter from a lady who lives in the

heart of the country says:

"Last season the State Convention of Wild Life League was held on the shores of our little lake, Conneaut, the largest lake in the state, and with it came a goodly delegation of Boy Scouts from Pittsburg and its vicinity. Among their numerous stunts was a tree-naming contest, which had to be abandoned because no competent This in the judges could be found. midst of a rural community which considers itself intelligent, and is fairly well informed on general subjects. I felt ashamed that city boys should know so much more about our own woods and fields than our country children—or our teachers."

We have received similar expressions of opinion from many other naturalists and along certain lines I have made personal observations. The result is that I am somewhat confused. I am not able to arrive at any decided opinion in the matter. I have however, come to the conclusion that city people, not only city children but adults, as a class, are more eager to learn somewhat of nature than are the country people.

Light is thrown on the situation by one of the "Fables of the Fair" by Josephine Dodge Daskam Bacon. She speaks of two singers that were invited to appear before a country audience. Both were skilled in the highest forms of music, but one of them reasoned in this manner: I will adapt myself to the situation; I will dress plainly; I will have as an ornament a little flower from the woods or fields, and I will sing familiar airs, "Bring Back My Bonny to Me," "Annie Laurie" and "Jingle, Jingle All the Way." The other decided to give the people some-

thing that they did not have every day. She dressed in her most elaborate gown to show them what she exhibited to the fashionable audiences of the city; she sang operatic airs in a foreign And the result? language. "Annie Laurie" and "Down on the Swanee River," it was only indifference. "My Jane or my Sally can sing just as well as that." But they literally "sat up and took notice" and applauded their best, when they heard songs of which they did not know a note nor a word. The author tells us, as the moral of her fable, "When you are among the Romans, do as the Romans don't."

Here is a wealth of wisdom. Perhaps it is the solution of the problem why more nature study is taught in city schools than in the country schools. More requests for addresses on nature topics come from city schools and audiences than from the country. The city people as well as those of the country are alike in this one thing, they are among the Romans and they want to do as the Romans don't. It is that everlasting craving of the human heart for something different, something beyond the routine of life. It is, as I believe, not because city people live nearer to nature or that they better appreciate the world around them, but because they have less of it. The more familiar the country people become with trees and cows, geese and pigs, robins and blue javs, the more desirious are they for a touch of city life. Blessed be the automobiles and other modern facilities for transportation that enable city people to have the rest and refreshment of the country, country people to have the culture and the refining influences of the city.

After all there is no unfavorable comparison to be made. If I may interpolate a humble country story, let me tell of a boarding house that stood on the banks of the Connecticut River, in the little town of Goodspeed's Landing, in the years long gone by. One season the sloops loaded with clams were numerous. For a small sum any one could purchase all the clams he could carry. An economical boarding mistress kept her table supplied liberally with clams, as a matter of strict economy. By and by one of the boarders declined clams, and the boarding mistress held up her hands as she exclaimed, "Why, Mr. Smith, this is astonishing. I thought you were the greatest clam lover I have." "Yes," he said, "I am fond of clams for eighty meals in succession, but I draw the line at the eighty-first."

Probably that is the feeling of the city man that gets city life steadily for eleven months and then says, "I draw the line at the twelfth. I will hie away to the country.' Probably the country schools and the country people may know more of nature, but they do not become rapturous in regard to it but rather devote their enthusiasm to what they have seen in an occasional visit to

the city.

But this bit of philosophy does not completely cover the situation. There is another point of view, especially for country people. They may know the humdrum, ordinary, utilitarian phases of nature, but they do not know how interesting nature is. It is the duty of nature lovers to show country people those interests. Occasionally some one from the city knows more about nature than the country person knows, but is not the opposite as often true? Many a bright-eyed boy or girl on one visit to the city will find more of interest and more to talk about to their friends than the boy can find who sees nothing but houses and streets and trolley ears all day and every day. There are such things as calloused eves.

Making Seed Potatoes Go a Long Way.

In the present high price of seed potatoes here is a good suggestion from a friend in Ada, Montana, who is experimenting extensively along these

"There are many ways to experiment with potatoes. Did you ever try them in a hotbed? I assure you it is interesting. Cover them with not more than an inch of earth. Pick the sprouts off once a week and transplant. Every sprout will make a vigorous hill.

"Another way to make your seed go farther is to divide the eves. thin bladed, very sharp knife. Cut the eye in two or four pieces; plant shal-

low and hill up by hand."



All communications for this department should be sent to the Department Editor, Mr. Harry G. Higbee, 13 Austin Street, Hyde Park, Massachusetts. Items, articles and photographs in this department not otherwise credited are by the Department Editor.

When the Herons Homeward Fly.

Far down on the Indian River, along the eastern coast of Florida, thousands of "little blue" and Louisiana herons make their homes among the thick mangroves and in the hidden lagoons and bayous of this enchanting land.

Though persecuted and shot to the verge of extermination in many localities which were formerly wonderful bird paradises, the recent guarding of some of the colonies in their nesting season, and the setting apart by our Government of large areas where the birds are protected throughout the year, have now checked this slaughter to a large degree; and one of the most pleasant sights of the tourist, as he sails through these blue waters and among the green islands of semi-tropical beauty today are the graceful herons and egrets which are almost constantly in sight, and which add a beauty and charm of their own to the southern landscape.

One of the sights which I shall always remember in a chronicle of events during a trip through this region was the pleasure of watching the gathering of these herons toward nightfall, as they silently made their way in little groups toward the common "roost" where they

were to spend the night.

This "gathering of the clans" began shortly before sunset and, as nearly as I could determine by noting the direction taken by the various flocks, their destination lay a few miles to the westward of our course, somewhere within the confines of that great protecting swamp known as The Everglades. The day had been an entranc-

ingly beautiful one, as days in this locality are wont to be, and as it was coming calmly to its close, there seemed to be a sense of dreamy satisfaction quietly stealing over us and settling all about us. What a complete harmony we find in nature at such a time —in the quieting of the waters, in the glorious tinting of the heavens, and in the softening shadows of the palms. The hum of the insects and the evening songs of the birds come to our ears so unobtrusively that we scarce notice these different sounds, so perfectly is blended all the music of the wild in Nature's gentle lullaby.

It was at such a time, near the close of a mid-December day, that I glanced up from these dreamy surroundings and noticed a flock of twenty-one little blue herons flying southward over our launch. Not a sound did they make, and their rythmic, regular flapping seemed to propel them without physical exertion toward the goal of their desires. Soon another and another little group flew silently over us. Sometimes there would be a single straggler, and again a flock of fifty or sixty birds, containing both the Louisiana and little blue varieties; but always did they seem impelled by the one motive or instinct, as unerringly they set their course for the common goal. Just so strongly and so truly does the "eall of home" come to every creature when

the day is done

Every two or three minutes as I looked up into the sky would I see these little flocks cleaving their way through the blue ether. They were flying at a considerable height and often in well formed V-shaped flocks. Proceeding steadily southward on our course, I soon noticed a change in the direction of the herons' flight. Flocks were now moving to the westward, and were flying at a much lower altitude than those previously seen, indicating that we had passed in a general

way the range of their roost, which was evidently not far to our westward in the interior of the swamp.

The shadows of the palms soon deepened and the wonderful phosphorescence began to light up the water about our launch, showing as a brilliant streak where it curled over the edges of the waves cut by the prow of the boat. Ere we realized it the sun had dipped below the horizon and, seemingly loathe to leave us, was reflected upward

Bird Tragedies.

June is the month when probably more tragedies occur in bird life than at any other season of the year. Young birds in the nest are exposed to the dangers of severe storms and to the attacks of such enemies as crows, jays and squirrels, while those which have left the nest and are not yet fully able to care for themselves are still subject to marauding animals and birds of prey.



"THE SOFTENING SHADOWS OF THE PALMS."

in a flood of golden glory, making beautiful beyond description the western sky and the silhouetted palms along its horizon. Into the glory of this sunset sailed the last straggling flocks of the little herons. Like silent shadows they passed over us and were gone.

Forty-eight separate flocks or individuals, totalling four hundred and fifty birds, were seen thus to pass over to this roost within a half hour. But it was not the number of birds which I saw that impressed me most. The blue of the waters, the shadowy palms, the glorious setting of the sun and the silent home-coming of the little herons at the end of the day,—these all went to make up the beautiful picture which now "hangs on memory's wall."

Perhaps we notice most commonly at this season the young robins just after they have left the nest. We may frequently see them along the roadsides or in our yards. At this stage, when they are little able to fly, many fall a prey to the prowling house cat, which is by far the worst enemy of nesting birds. The extent of this destruction may be somewhat realized by the recent statement of one of our well-known naturalists that seven hundred thousand birds are annually killed by barn cats in Massachusetts alone.

The phoebe's nest shown in our illustration contains the skeletons of three young birds which evidently starved to death, owing probably to some accident befalling either one or



YOUNG ROBIN SOON AFTER LEAVING NEST— AN EASY PREY FOR CATS.

both of the parent birds. Many young perish thus while still in the nest; others are preved upon by nest vermin, which sometimes become so bad as to cause the abandonment of the nest by the parent birds and the consequent destruction of the young. I have known of such a fate befalling a brood of phoebes whose home was in the sheltering crevice of a great rock in the woods. The situations selected by these birds for their nests unfortunately are too often in places where conditions seem to promote such dire consequences. These birds, however, usually raise two broods of young in a season and are thus able to hold their own against these destructive agencies.



PHOEBE'S NEST CONTAINING SKELETONS OF YOUNG WHICH HAD STARVED TO DEATH.

Crows and jays are probably responsible for the destruction of many eggs and young birds in the nest. Such was the fate of the young robins from the nest shown in our third illustration. A great deal of pleasure had been derived from watching the construction of this little home in the maple tree. The mother bird is here seen hollowing out the structure with her breast, preparatory to its final lining of soft grass-Although this tree stood in the vard within six feet of my window, and as near to the house on the other side, this close proximity to dwellings evidently did not save its occupants from an untimely end, and another tragedy



A ROBIN BUILDING ITS NEST.

was enacted when, after watching these happy birds through the days of home building, incubation of the eggs and feeding of the young, I one day heard their cries of distress and looked up just as a crow had swooped down upon the nest and was making off with some of the young birds in its beak.

In the lowlands, especially among the ground nesting birds, there are many tragedies caused by severe and unseasonable storms in the nesting season. The red-winged blackbird nestlings shown here have succumbed to the cold and exposure caused by a prolonged rain and heavy storm which lasted for days, and which tore down

many such nests throughout the marshes. We also found after this storm several nests of swamp and song sparrows, which contained eggs, entirely submerged, as the water rising far above its usual height and covered many of the grass hummocks which contained their nests. Such a prolonged storm in June, 1903, caused the death of hundreds of thousands of birdin Massachusetts. Many colonies of martins were exterminated, nests were abandoned and dead birds were picked up in various places. This storm was so severe in its general effect upon bird life as to call for a special report by the Massachusetts State Ornithologist. Severe gales are sometimes destructive to sea birds by blowing them far inland where they cannot obtain food. such storms also causing the death of many of the smaller birds in the migrating seasons.

The young oriole shown on the edge of the swinging basket had fallen from its nest and was cared for by some one interested in its welfare. Young birds may often be saved from destruction in some such way by providing food and shelter until they are able to care for themselves. Nests which have fallen down may sometimes be attached to a temporary support and the parent birds induced to resume their duties of caring for the young.

Probably the greater part of all bird life comes to a tragic end Many other



YOUNG RED-WINGED BLACKBIRDS. Nest broken down and birds killed by storm.



YOUNG BALTIMORE ORIOLE WITCH HAD FALLEN FROM ITS NEST.

agencies of destruction might be mentioned besides those illustrated here. but it is not a very pleasant subject when we consider those things over which we have no control. It should concern us, however, to know that there are many things which we can do to conserve these useful creatures, for probably more than all these combined is man the agent of death among the birds. A sane and reasonable control of cats, a proper provision of food and nesting sites where we remove those which Nature has provided and the checking of their natural enemies will tend to increase rather than diminish those species of value which are especially desirable about the house. while still further restrictive laws and assistance to such organizations as the Audubon Societies, which are doing protective work among the birds, is vitally necessary if we would stop the ruthless slaughter, if not actual extermination, which is still being perpetrated among some of our naitve birds.

In Passing.

BY GRACE E. EMERSON, NORWALK, CONNECTICUT. There's so much good in field and wood I fail to count the half I find:
Refreshing ease 'mid grass and trees;
With length'ning shadows peace of mind;
Again the birds sing hopeful words,
And healing lingers in the breeze,
Yet is my heart a living part
Of all the life I find in these?

An Unexpected Visitor.

When I came downstairs at about six o'clock in the morning on September 16, I was astonished to see a screech owl sitting on a radiator in the

er, so we opened the door and he flew silently out, being lost to view in some near-by woods.

We think the owl must have come down a chimney into a fireplace, as



THE OWL ON THE RADIATOR.

front hall. My first thought was that someone had put a stuffed bird there as a joke, but I realized at once that he was alive, because he turned his head when I moved to one side. called to my wife, and she came down to see our visitor, who did not seem to be at all disturbed at our presence. then got out my camera and took some pictures, one of which is reproduced herewith. Nearly an hour later I went to the house of a neighbor, and got him to come over with his camera. The owl had remained in the same place all this time, and I found that I could get close to the radiator without disturbing him. But finally, when I stood with my hand on the radiator, within a few inches of the owl, he became alarmed and flew into an adjoining room. He struck against a mirror and dropped onto a table, where he sat on a pile of books, looking very wise indeed. He did not remain long, however, but flew to my camera which was standing near-by. After my friend had taken his picture in this position we decided not to keep him in the house any longthere was apparently no other way in which he could have gotten in.—H. S. Shaw, Jr., Dover, Massachusetts, in "Bird-Lore,"

Downy Woodpecker and Goldenrod Galls.

Schenectady, N. Y.

To the Editor:

Last autumn I noticed a downy wood-pecker working on some goldenrod galls. I examined one gall after he had left it, but found the larva undisturbed. From your observations have you found that these birds ever destroy the larva in these galls? A reply through The Guide to Nature will be appreciated.

B. D. MILLER.

Personally I have never seen a woodpecker working on these galls. Can any reader furnish the desired information?—H. G. H.

Roseate clouds and a waning moon,
A flight of birds in the sky,
Are heralds to proclaim to us
The new day from on high.
—Emma Peirce.

A June Daybreak.

The Eastern sky was flushed with rose, The air serenely still; The early light, a halo, lay Upon a distant hill.

The little clouds, like buoyant hopes, That floated in the blue, Caught all the glory of the dawn, And passed it on to you.

The birds at matins, filled the air With jubilant outpour; The oak beside me flashed its green, And all its fringes wore.

The sleeping valley opened wide
Its eyes of limpid blue:
Twin lakes that mirror all the sky,
The changing season through.

The smoke from neighboring rooftrees caught

The first glint of the sun;— The night was over, the new day Auspiciously begun.

—Emma Peirce.

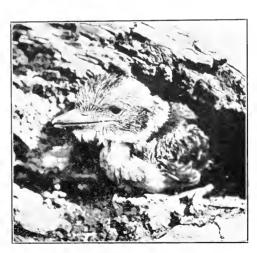
Birds.

I just can't find the words to say how much I'm fond of birds. I'd just as soon ride in a hearse if birdless was this universe. They seem to right our hapless wrongs whene'er they chant their happy songs. I'm fond of ev'ry-thing with wings—I just adore the feathered things. I love to hear the little lark sing notes at dusk before it's dark. The sparrow I could watch all day—I like his happy, saucy way. The black domed little chickadee sure has an awful drag with me. The robin with its flaming breast is always welcome as my guest. Whene'er I hear the whippoor-will, I say "I hope you'll ne'er keep still—I like to hear the tuneful song that you so gaily pass along." The bluebird, grosbeak, jay and wren are lifelong pals of mine-Amen. I fail to see where there is fun in shooting birdlets with a gun. I think it is a doggone shame to shoot 'em dead or make 'em lame. The marten and the bobolink are two fine specimens, I think. The thrasher and the oriole are pals of mine-upon my soul. Oh, I could go along the line and tell how every bird doth shine. I haven't time to name each one-I've got to work. I need the "mon." But I just want to up and say that birdlings brighten up the day. They beautify this war-mad globe and make it one glad, sweet abode. I love to walk the country lane and hear the swallow's sweet refrain. I like to see them swell their throats and send forth charming, soothing notes. I like to seem them upon high a-fluttering against the sky. What if they eat a few stale seeds—they must supply their inner needs. Remember that they also eat the bugs that spoil the beets and wheat. They're living ornaments and they should be protected ev'ry day. We ought to put up houses for the birds and say "Come by the score—just come in flocks and hang around—I'll scatter crumbs upon the ground." The bird's a most endearing thing when on the ground or on the wing. Gee whiz! I just can't find the words to say how much I'm fond of birds.

RAY I. HOPPMAN.

A Kingfisher that Eats Snakes.

The giant kingfisher, or laughing jackass," which is found throughout Australia, nests in holes in dead trees, it is called "kookaburra" by the natives, a name suggested by the bird's call.



THE LAUGHING JACKASS.

Unlike most kingfishers this bird is often found nesting far from water, where it lives on insects, lizards, snakes, rats and small birds. The accompanying illustration is of a young kookaburra at its nest hole in a large dry eucalypt in East Gippsland, Victoria, Australia. It was taken by J. H. Mac, and was sent to us by our Australian correspondent, Mr. H. Stuart Dove.



The Heavens in June.

BY PROFESSOR ERIC DOOLITTLE, OF THE UNIVERSITY OF PENNSYLVANIA.

June is our month of the shortest nights. At the time of the shortest day, twilight does not fully disappear until about twenty minutes before ten o'clock in the evening, while before half past two o'clock in the morning the first signs of dawn are seen in the east. The astronomer has thus less than five hours of complete darkness in than the magnificent groups to be seen during the colder months of the year. We have, indeed, one most brilliant and interesting group—that of the Scorpion, which is now creeping upward into our evening heavens from the southeast—but the very widely extended groups of Ophiuchus, Virgo and Hydra, which fill the remaining part of the southern sky, are composed almost wholly of faint, inconspicuous stars.

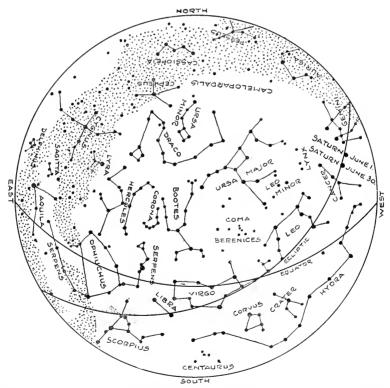


Figure 1. The Constellations at 9 P. M. June 1. (If facing south, hold the map upright. If facing west, hold West below. If facing east, hold East below. If facing north, hold the map inverted.)

his observatory during the entire night, a striking contrast to the long hours afforded by the nights of midwinter.

The constellations, too of our summer evenings are (as our readers doubtless well know) far less brilliant

During this month, too, the planet Saturn, of all the planets, alone remains conspicuous in the evening heavens, and this is rapidly sinking in the west. Yet perhaps the most interesting spectacle of the entire month is that furnished by the rapid motions and close approaches of the three bright worlds—Mercury, Mars. and Jupiter. These are now, however, all very close together in the morning sky, so that in order to study them the observer must go out in the early morning hours a short time before sunrise.

The Morning Planets.

The sun in its slow apparent journev among the stars has now passed to the east of Mercury, Mars and Jupiter so that as we look at these planets in the southern heavens we see the sun to the left of them. Consequently these planets now set before sunset and arise before the sun rises; that is, they are all morning stars. As Mars moves eastward among the stars far more rapidly than Jupiter, the sun draws away from the former planet much more slowly than from the latter one. The result is that the latter planet seems to climb upward into the morning sky much more rapidly than does the more swiftly moving world.

All three of these bright worlds are now close together and moving eastward through the constellation Taurus. Both Mars and Jupiter move quite steadily eastward, the former along the path AB, Figure 2, and the latter along the path CD. But the motion of Mercury is peculiar. On June 1, it is at the position E, but its motion is then so slow that it is passed by Mars when the former planet is at K and the latter at C. Its motion then quickens; it passes Jupiter (HV) on June 8, and overtakes and again passes Mars (RS) on June 11. One hour later it reaches the point T, at which time it is at its greatest distance from the sun.

During each of these three conjunctions of Mercury the two planets are unfortunately rather far separated in the sky owing to Mercury's path lying so far to the southward among the stars. A far more striking sky figure is that afforded by the close approach of Mars and Jupiter (at the point V) on the morning of June 8; the two planets will then appear separated by but forty-one minutes in the sky.

To observe these most interesting motions the reader should turn toward the northeastern horizon in the very early dawn. On June 1 the three planets will rise about one hour ten minutes before sunrise, while by the end of the month Mars and Jupiter will rise two hours before the sun. The dates of the conjunctions are: Mercury with Mars,



Figure 2. The paths of the morning planets from lune 1 to June 30. All is the path of Mars, CD that of Jupiter and EF that of Mercury.

June 5 and June 11; Mercury with Jupiter, June 8, 9 P. M.; Jupiter with Mars, June 8, 7 A. M. Mercury reaches its greatest distance west of the sun on June 11. The contrasting colors and appearances of these three worlds, so near together in the sky, will be observed to much greater advantage if the reader can use a small telescope in their observation.

The Partial Eclipse of the Sun.

The third eclipse of the present year will occur on the forenoon of June 19. This is a partial eclipse of the sun, but it will unfortunately be invisible from almost the whole of the United States. The only part of our country from which anything of the eclipse can be seen will be from the stations lying north of the line MN, Figure 3. From practically all of Alaska, Western British North America, Northern Green-

land, Russia and Northern Siberia the eclipse will, however, be visible.

Observers above the line MN will see the intensely black lower edge of the moon cover a small portion of the upper part of the bright sun's disc, the eclipse beginning soon after sunrise at a very few minutes before or until next December. Venus now shines sixty times the brightness of a first magnitude star.

Saturn this month moves quite rapidly eastward from Gemini into Cancer. It is being steadily overtaken by the sun and therefore each evening sinks lower in the west, but it is still

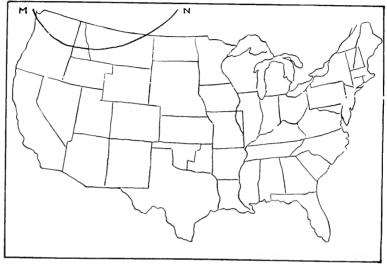


Figure 3. The region of the United States within which the solar eclipse of June 19 is visible.

after seven o'clock A. M. (Eastern standard time). The exact instants of beginning and ending cannot be stated as these differ for every station. Observers farther north will see a greater part of the sun hidden, but from no station will quite so much as one-half of the sun's diameter be covered by the moon.

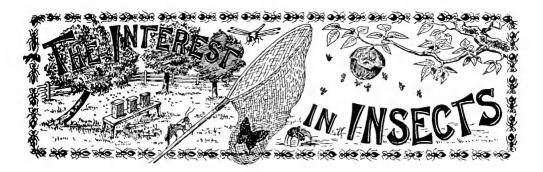
The Planets in June.

As has been stated, three of the brighter planets are now close together in the morning sky, and a special effort to observe these (especially with a small telescope) will be well repaid.

The beautiful planet Venus is steadily emerging from the sun's rays into the evening heavens. As it is now intensely bright, it can be found without much difficulty, shining in the twilight glow almost directly above the northwest point of the horizon. On June 1 it sets forty minutes after sunset and this time is increased to one hour fourteen minutes by June 30. In the telescope the planet is seen to be nearly full; it will not attain its crescent phase

in quite favorable position for observation. This, however, is the last month during which it can be well observed until toward the close of the year, when it will again enter the evening sky.

The sun will attain its highest position among the stars on June 21 at seven hours fourteen minutes P. M. Eastern standard time, and this will accordingly be the longest day of the present year. At this time the day, from sunrise to sunset, will be six hours twelve minutes longer than the following night. The true twilight and dawn will increase this duration by more than four hours, while observers whose northern horizon is unobstructed and who are completely removed from all artificial lights may view the faint twilight illumination throughout the entire night. They may see it move along the northern horizon from the west until it attains a position due north at midnight, after which it will move slowly eastward, continually increasing in intensity, until it begins to blot out the light of the fainter stars. when the very faint midnight glow will have merged into the true dawn.



Frail Wanderers of the Night.

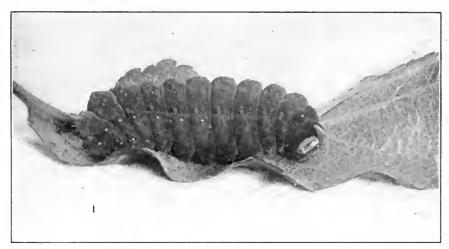
BY EDWIN L. JACK, PORTLAND, MAINE. [Photographs by the author and Cordelia I. Stanwood.]

There are few persons that are aware that such wonderful and gorgeous creatures exist as the night moths of our early summer months. This lack of familiarity with one of nature's most wonderful creations is largely due to the fact that these large moths are nocturnal in habit, remaining at rest during day.

A warm June night, as the dusk be-

Their life history is practically identical.

Starting with the fully matured moth, we find it in the last stage of its life. It has emerged from its cocoon, has mated and has begun to deposit its eggs. These it places upon the leaves of trees on which its caterpillars are to feed. In the course of two or three weeks, these eggs hatch into tiny caterpillars which at once begin to feed on the leaf. This feeding continues for four or five weeks, during which the growing caterpillar has moulted at



Photograph by Cordelia J. Stanwood.

THE LUNA CATERPILLAR.

It hardly seem credible that so repulsive looking a creature would evolve anything so beautiful as a luna moth.

gins to gather, is the ideal time for moths. The bright arc lights of our city streets seem to have a great attraction for them and it is by this means that a few shut in city dwellers are sometimes given the opportunity of viewing some of the more common species.

The two here illustrated are the luna and the cecropia, two of our most common and yet most beautiful moths.

least three times. It stops eating, travels around for a day or two, and then begins to look for a suitable location in which to place its cocoon. This is usually the limb of a tree on which it has been feeding. Having found a satisfactory place, it begins to spin its winter home, the cocoon.

When the cocoon has been completed, a wonderful transformation takes place. The skin of the caterpillar is



Photograph by Edwin L. Jack,

THE LUNA MOTH.

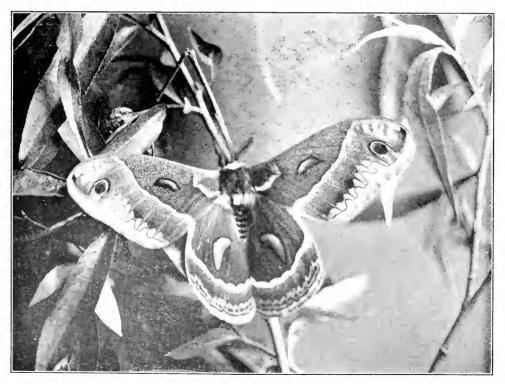
The beautiful long and curved "trailers" seem to give
this moth a touch of distinction above all others.

cast off and its body is changed into a dark, shiny pupa. In this state the moth remains through the winter.

You may wonder how so delicate a creature as a moth, with often a six and one-half inch expansion of wing, is to escape from the cocoon without being fatally injured. The process is simple, yet the most wonderful with

which I am acquainted. Many cocoons, such as that of the luna, are completely sealed at each end, while others. such as that of the cecropia, are woven loosely at one end. In the case of the luna, when the moth has reached maturity and is about to emerge, a damp spot appears on one end of the cocoon; nature has provided the moth with an acid which it ejects at just the proper moment. This acid softens the hard case of the cocoon; suddenly there is a scratching and clawing from within; the surface of the damp spot begins to rise and fall; at last it bursts open and the moth drags forth its large body into a world of light and sunshine. Immediately after clearing the opening. the moth climbs some near-by support. from which it hangs so that its wings may dry and expand, for at the time of emerging a moth's wings are no larger than a man's thumb nail.

As we watch, we suddenly become aware that these small, damp wings are taking on size and color and before our very eyes, in less than three-quarters of an hour, wings which at emergence



Photograph by Edwin L. Jack.

THE CECROPIA MOTH.

When fully expanded this moth's wings measured six and one-half inches from tip to tip.

were not an inch in length have developed to a sweep of six and one-half inches. Suddenly a quivering motion seizes the moth; it begins a slow raising and lowering of the wings, exercising them for flight and, by the time two hours have passed, it is ready to sail forth into the world and seek a mate.

The eecropia is our largest moth and, next to the luna, I think holds supremacy over all mothdom. Its coloring is so wonderful and varied that an accurate description would be almost impossible. One must see this moth to

appreciate its rare beauty.

The cocoon of the cecropia is worthy of study. Unlike that of the luna, it is loosely woven at one end, thus making it much more easy for the moth to escape. It is the largest cocoon spun by any caterpillar. I have known these cocoons to measure three and one-half inches in length. Much silk is used in their construction; in fact, the cecropia caterpillar is frequently called the "American silkworm." The cecropia spins itse cocoon in a variety of trees, the maple, the wild cherry, the apple, the alder and the willow. In exposed places these cocoons are a beautiful silver gray but if spun in a locality where they are protected from the weather their color is a rich brown.

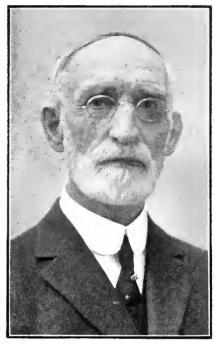
Luna cocoons are spun among the leaves of birch and willow trees and fall to the ground in the autumn, where a careful search is required to find them. They are about an inch in length and of a light silver gray color.

Stamford's Veteran Beekeeper.

The "American Bee Journal" has an extended article descriptive of a tour of New England by its editor. We quote as follows from his liberal appreciation of Mr. L. C. Root of Stamford:

"L. C. Root, son-in-law of Moses Quinby, who was a contemporary of Langstroth, is one of the greatest enthusiasts I have ever had the good luck to meet. During his entire life, whatever he has done has been done with zeal and earnestness. He revised the "Mysteries of Beekeeping" of Quinby and the book is called "Quinby's New Beekeeping." For years he was one of the largest beekeepers of New York

State For the past twenty-five years, more or less, he has retired from active beekeeping, leaving his apiary in charge of his brother and settled in Stamford, living with his two daughters one of



MR. L. C. ROOT.

whom is a physician of note. He keeps only a few colonies of bees in the city, in the attic of his barn, where I saw them. But as energetic a man as he could not remain long idle. So he was entrusted with the duties of Milk Inspector for Stamford. He was the first inspector to prepare a bulletin in which each dairy was separately reported and its sanitary conditions carefully detail-The result was a host of friends and some enemies, for the unsanitary establishments could not be pleased with a truthful record, while the mothers and housekeepers were thankful for the straightforward information which his bulletins gave.'

The Nest of an Unknown Hornet. Shelburne, Massachusetts. To the Editor:

I enclose a photograph of a nest that I found hanging under the eaves of an old shop. Is this a freak nest of some common wasp, or is it a typical nest of some uncommon one? It is the first of the kind that I have ever seen. It



AN ASTONISHING HORNETS' NEST.

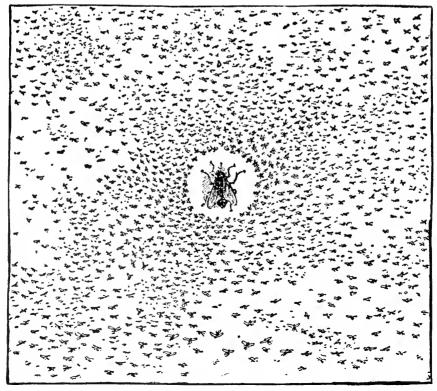
may be of interest to you and to the readers of your magazine.

Yours sincerely, EARL A. NEWHALL. I have never seen a nest of this type, but several years ago a photograph of a similar one was sent to me. I have forgotten by whom. Mr. Newhall's letter and the photograph were forwarded to Dr. L. O. Howard, Chief of the Bureau of Entomology, Washington, D. C. He replies as follows:

"I never saw a hornets' nest like the one in the photograph, and I have referred your letter to Mr. S. A. Rohwer of this Bureau, who has studied these creatures for many years, and who replies, 'I have never seen a nest like this before, and do not know if it is an abnormal one or not. If possible, I should like to have some of the makers so that it would be possible to determine the species and thus know if it is abnormal habit.'"

If any one should find another nest of this type, every effort should be made to obtain it and the hornets so that full scientific details may be ascertained.

A man hears the voice of Nature only when he speaks to her.—"Motifs" by E. Scott O'Connor.



SWAT THE FLY.
See "Kill the Spring FLA" page 387 of our number for May.



Incorporated, Massachusetts, 1892

Incorporated, Connecticut, 1910

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ne is no miser, er precious gold: h hands flings it broadcast, have and hold.

—Emma Peirce.

Please remember this educational uplifting work in making your will. Form of Bequest to the Association

I hereby give and bequeath to The Agassiz Association, an incorporated association, having its principal executive office at ArcAdi.A. in Sound Beach, in the town of Greenwich, Connecticut, the sum of_____dollars.

Give the Roads Fair Play.

[From the New York Times, February 23, 1917.]

Now that the country can be fed and warmed only by special trainloads of coal and food, the railway situation is visible to all but the blind. The situation is too serious to be dealt with in a nagging spirit. It would be easy to trace blame to the railways or to the Interstate Commerce Commission, as many are doing. It would be easy for them to defend themselves by pointing to the laws. That throws the blame back upon those who elected the lawmakers and supported them in the policy which it may be hoped is now culminating. Placing the blame for the past is not a remedy. What is needed is a forward-looking policy which shall correct the errors of the past. In that aspect the crisis has its uses, and they are proportioned to its seriousness. Once it was necessary to correct railway abuses and convince the companies that they are subject to the law. They are as humble now as ever they were arrogant, and are suppliants rather than dictators. It was also necessary to convince the Interstate Commerce Commission that something besides "power" and "orders" is necessary. The best of intentions have met obstacles in execution of a sort which ought to give the Commission a feeling of sympathy with the railways in a task more difficult than has been appreciated. The lawmakers also have fallen below their intentions and the expectation of the railway haters. Largely that, too, was because of the difficulties of the case. The explanation of the people's share of the blame for misdirected legislation and administration is the same. Now even the people must see that they are punishing themselves over the railways' shoulders. Only experience could have produced this frame of mind. If the educational process is now complete, a great first step toward a new departure has been taken, and the outlook may be regarded hopefully.

Assuming that all concerned are in a regenerated frame of mind, probably there will be no dissent from the proposition that the root of the trouble is the lack of funds for the railways to use in the public service. Within a few days the New York Central has had to abandon its plan for an issue of

stock, and the Southern Railway has been unable to issue bonds. If such railways cannot finance themselves, what is the prospect for others in less

leading positions?

There is just one way to enable the railways to finance themselves. They must be allowed profits large enough to attract the capital to enable them to serve the public. In the old days there was danger that liberality in funds invited waste of resources for service and danger to investors. For the present that chapter must be regarded as closed.

Resignation of President Elliett.

It is with sincere regret that we learn of President Elliott's resignation of the presidency of the New York. New Haven and Hartford Railroad Company. Every New Englander, especially every Connecticutian, is an admirer of President Elliott's work and has genuine sympathy with him in the overwhelming mass of work with He has not which he has struggled. had one obstacle nor half a dozen but a long list of most perplexing problems that would tax any man's energies to the utmost. No wonder that he has concluded that, for the interest of his family and of himself, it is his duty to lay down at least a part of the load. He will continue as a director as long as is desired, and will in every way contribute toward the prosperity of the road.

Mr. Pearson, the newly elected president has had an extended experience in railroad matters. He is a man of marked ability in the prime of life. Every one that loves the New York. New Haven and Hartford Railroad, and is proud of it as a feature of New England, feels that no better selection could have been made.

The House Wren.

BY EUGENE SECOR, FOREST CITY, 10WA. A round of bubbling feathered song, A dress not made for show, A cheerful spirit all day long That keeps my heart aglow.

A friend to man that never tires, That hunts the garden o'er, And by its useful life inspires The soul to seek, not soar.



THE AMERICAN ROSE ANNUAL. Edited for The American Rose Society by J. Horace McFarland. Harrisburg, Pennsylvania. American Rose Society (Editor's Office).

This beautiful book, issued by a lively, wide-awake society, contains many articles from authorities on the subject, and is beautifully illustrated. Every lover of the queen of American flowers should own this handbook and follow regularly the work of the society.

PETS: THEIR HISTORY AND CARE. By Lee S. Crandall. New York City: Henry Holt and Company.

This book is the outgrowth of the author's long, successful, practical experience. While special attention is devoted to such popular pets as cats, dogs, and birds, almost every animal which may be kept for companionship or ornament is included, and the directions for their care cover all the ordinary conditions which may be met. There are suggestions, based on wide experience, to guide the purchaser of pets.

THE BOY SCOUTS' YEAR BO K. Edited by Walter P. McGuire and Franklin K. Mathiews. New York City. D Appleton and Company.

This is dedicated "To the 8,000,000 Boys of Scout Age in the United States." It is certain that every one of those millions can find something of interest in the book. It is a real boy's book of genuine achievement in the use of things to be seen and things to be done. The activities described cover every phase of outdoor life, and the detailed observations include a wide range of nature study.

THE VOICE OF THE GARDEN. By Abram Linwood Urban. Philadelphia, Pennsylvania: Thomas Meehan & Sons.

Naturally, the first question is, "Can the garden speak?" and the second should be, "Can you hear what it has to say?" The garden, like all nature, is speaking, but as the Reverend Mr. Smith wrote in his poem, "America"
—"Let all that breathes partake: Let rocks
their silence break. The sound prolong." The author sees intelligence in plants. He thus tells us of Darwin:

"Many will recall the elder Darwin's fine enthusiasm, who, while always strictly scientific in his methods, never stating anything but uncolored fact, was filled with wonder and awe in his study of the lives and conduct of plants, indicating to his mind something much

like human intelligence.

THE BOOK OF THE PEONY, By Mrs. Edward Harding. Philadelphia, Pennsylvania, J. B. Lippincott Company,

A magnificent book on a gorgeous flower. Is there anything in the floral world more marvelous than a peony, and is there any other book in which three color printings and gen-eral high grade mechanical art are more perfeetly exhibited than this? The plates, the text, the tables, the detailed description, everything is ideally good, including the long chapter, with illustrations, on the diseases of the peony. Every lover of the peony should have this book.

THE WOODCRAFT MANUAL FOR GIRLS OF THE WOODCRAFT LEAGUE. By Ernest Thompson Seton. Published for the Woodcraft League of America, 13 West Twenty-ninth Street, New York City. Garden City, New York: Doubleday, Page & Company.

More than iour hundred pages are devoted to the methods of The Woodcraft League. The manual is profousely illustrated and contains much valuable material. It tells how to form a tribe, with history and methods; tells of games, sports, songs, plays, wood lore and handicraft, with other interesting articles on many phases of nature.

THE JOYOUS ART OF GARDENING. By Frances Duncan, New York City: Charles Scribner's Sons.

The amateur gardener will find in this book not only inspiration but practical aid, and it contains many good suggestions for those that have had considerable experience. The reviewer is inclined to think that when the author says that she has tried to aid the beginner she has been a little overmodest. There are many good points in the dainty illustrations of garden plans and effects. It is a good allround handbook on the garden in its floral and decorative aspects. As the author has the practical information, we hope to see a book from her on the vegetable garden. It would be a welcome addition to our library of helpfut books.

THE BIRD STUDY BOOK. By T. Gilbert Pearson, Secretary National Association of Audubon Societies. Garden City, New York: Doubleday, Page & Company.

One would naturally expect from Mr. Pearson a book of general, popular, helpful interest. His broad outlook over the bird world as Secretary of the Audubon Societies reveals needs. He has not written merely from an individual's point of view, but in a sincere desire to be helpful. He has fully met the expectations of those who know what kind of work to expect from him. This is not a book of identification. It takes for granted that the reader knows an English sparrow from a crow, and it tells about the birds themselves, their lives and migrations; the birds in winter, bird laws, etc. This, with Chapman's "Handbook of Birds of Eastern North America' and Beebe's "The Bird." would form an ideal library for the most enthusiastic student of birds. Each of the three fills a void left unfilled by the others. Mr. Pearson has done his work in a masterly manner.

The Animal Kingdom in Pictures and Stories. By several authors. Ann Arbor, Michigan: Educators Association.

On the reviewer's desk has been placed a set of ten beautiful little monographs on the various divisions of the animal kingdom, such as "Valuable Fur-bearing Animals," and "Freakish Animals" by our good Member of The Agassiz Association, Winifred Sackville Stoner, Jr. Other books in the series are written by other talented and enthusiastic lovers of nature. The print is large, and the illustrations for the most part are attractive. The series should prove of interest, especially to children, and consequently valuable to teachers in their schoolroom work. It is evidently with this object in view that the Educators Association has issued the books.

My Garden of Dreams. By Abram Linwood Urban. Philadelphia, Pennsylvania: Thomas Mechan & Sons.

The dreams are beautiful though not utilitarian in their suggestions. The author is not seeking to teach the practical, except so far as the beautiful and ideal are practical. It does not teach us how to raise bigger potatoes or tomatoes, but it does tell how to make life bigger and better. His garden of dreams is the garden of the heart and of soul longings. It sees sociology in an ant hill and prophecy in a flower. It is well thus to go to a garden as well as to all nature. Life is not all stomach and pocketbook. Holy inspirations may come from a garden. The author has achieved a good work by showing us how to love the world that is so much with us, even the world of the garden. The book contains beautiful word pictures of a garden, but they are not the most beautiful things in the The author has unconsciously portraved the beauty of his own heart. That can influence more than rosebushes or lilacs.

The Mysteries of the Flowers. By Herbert Waldron Faulkner, Ph. B., M. E. New York City: Frederick A. Stokes Company. Mr. Herbert W. Faulkner is not only known throughout the country as an artist, botanist and lecturer, but he has personally endeared himself to every reader of The Guide to Nature by his interesting and sympathetic portrayal of the interesting things that plants do. He has an insight into the mysteries of flowers similar to that of the late beloved William Hamilton Gibson, and is

a fitting successor at the Gibson Studio in Washington, Connecticut. What Mr. Faulkner has published in this magazine is but a sample of the good things to be found in this magnificent book which we cordially recommend.

It imbues the reader with a new interest in his native wild flowers, by showing him what they are like, how they live and how they distribute their seeds. The interdependence of flower and insect is interestingly set forth.

The author describes the many varieties of American wild flowers, their mechanisms, and their methods of interchanging pollen. He shows their individual and ingenious schemes for luring the bee and butterfly, who are so indispensable to their life. The book goes deeper than botany, which seeks merely to name and classify the flowers, and reveals them as eager, living things, flourishing in spite of difficulties and attaining to the beauty of perfect living.

The publishers have done well their part, and have produced a book that is convenient and attractive. It whets the taste for more. No one can read it and look at the dainty illustrations at this the flowering time of the year, without wanting to start out to make acquaintance with what is therein described.

Sex-Educations By Maurice A. Bigelow. New York City: The Macmillan Company.

This book deals with sex-education in its broadest aspects, defined as including all scientific, ethical, social, and religious instruction and influence which directly and indirectly may help young people prepare to solve for themselves the problems of sex that inevitably come in some form into the life of every normal human individual.

While recognizing the vast importance of immediate sanitary attack on some of the greatest problems of sex, the book emphasizes education for attitude and for ethical standards of life as offering the only basis for a permanent movement for improving relations of sex and human life.

The book is addressed to educators, social and religious workers, and parents.

THE PASSING OF THE GREAT RACE. By Madison Grant. New York City: Charles Scribner's Sons.

An entirely new and original recasting of history on a purely scientific basis, treated in a clear and popular style. The permanence of physical characters, both in relation to the "Melting Pot" of America and to the changes in race preponderance in Europe resulting from the European war, is brilliantly discussed.

brilliantly discussed.

Henry Fairfield Osborn who writes the preface makes this statement which will

bear very careful consideration:

"If I were asked: What is the greatest danger which threatens the American republic today? I would certainly reply: The gradual dying out among our people of those hereditary traits through which the

principles of our religion, political, and social foundations were laid down, and their insidious replacement by traits of less noble

character."

The author almost startles one by the following statements: "The men who wrote the words, 'we hold these truths to be self-evident, that all men are created equal,' were themselves the owners of slaves, and despised Indians as something less than human. Equality in their minds meant merely that they were just as good Englishmen as their brothers across the sea. The words 'that all men are created equal' have since been subtly falsified by adding the word 'free,' although no such expression is found in the original document, and the teachings based on these altered words in the American public schools of today would startle and amaze the men who formulated the Declaration.

"The basis of the government of man is now and always has been, and always will be, force and not sentiment, a truth demonstrated anew by the present world conflagration."

The Pinnacle. A Book of Verse. By Caroline Clark Hinton. Atlanta, Georgia: A. B. Caldwell Publishing Company.

The author is well and favorably known to the readers of this magazine as a frequent



CAROLINE CLARK HINTON.

contributor of poems and illustrated articles. She is a lover of the great out of doors. Not only is she a careful student, but she sees nature also from the poet's point of view. A careful and thorough literary training with a natural gift in the use of words enables her to express in effective and impressive language her emotions as a lover of nature. She

takes a wide view, as may be inferred from the title of the book, "The Pinnacle," This is not only the title of the first poem but is the spirit of the book. She has a broad outlook upon nature as well as upon humanity. As she looks down from the summit to which she has climbed and tells us of the silence that surrounds her, of the nature far above the passing bird, she considers the sparkling stars and the cool, sweet air that embraces her and all the earth.

She comes to this conclusion:
"No longer need I fear,
For fear was overcome,
The worst is often best,
This was the way
That man must go;
This was the way of life:
The precipice,
The climb,
The rock,

The bird note overhead; And at the end,

The Pinnacle of God."

Several poems exhibit her intense love of youth and some emphasize her love for the baby.

"He opened wide his baby eyes And smiled back into mine. I dreamed that I was Mary, The little Child, Divine!"

We cordially commend this dainty little book not only on account of its beautiful appearance, not merely as a gift for a friend, but as a book to be loved and to influence the reader's life.

Sebago-Wohelo Camps, Fifth Season, 1917. Under the Direct Supervision of Dr. and Mrs. Luther Halsey Gulick, Founders of the Camp Fire Girls. New York City address: 461 Fourth Avenue.

This is a very attractive book, showing how the Camp Fire Girls or others live in this well equipped camp; how they exercise or amuse themselves in outdoor athletics and amusements. Dr. Gulick is an expert in the physical training of young people. Mrs. Gulick knows all about costumes, emblems, sociality and companionship with the girls. All together, so far as it goes, the camp is ideal for girls.

But the reviewer cannot refrain from an appeal that these girls be taken not merely to nature but into nature. There is nothing in the book that would directly inspire a girl to become a real student and lover of nature and to get inspiration and uplift therefrom. Probably this book is intended to be representative of the spirit of the Camp Fire Girl. That is good so far as it goes, but it neglects the one big point—real nature. Girls who go to the woods and to wild nature should get more out of them than they can get from their environment in the city.

The illustrations in this book are as follows: Location and surroundings, six; camp amusements, five; dancing, one; riding on water, seven; on horse, three; cooking, one; sitting still, one; walking, two; athletics, three; bathing, two. There is one beautiful full page illustration of a girl holding a pet chipmunk.

That may be considered or misconsidered as nature study. It is not made clear which point of view is intended, but the tendency seems to be to classify it as a camp of amusement. Yet if we call it nature study, it is the only illustrative portrayal of nature study in all the thirty-two full page pictures. One to thirty-two is not a large percentage.

The occupations that are shown are attractive to young girls and are undoubtedly efficient in securing enrollments at the camp. Without lessening any of the advertising valne of the catalogue, that value might have been increased by mentioning some of nature's attractions in the camp. These young girls should be shown that there is something to be gained by living by a pond, and something more in the woods than ordinary athletic amusement, riding, walking and similar occu-pations that could be indulged in in the city home. It pains a nature student to think of these young girls in such nearness to all the wonders of these beautiful woods, the camp, the mountains, and fail to show them, or at least fail to include in the catalogue, any of the wonders of plants, insects, trees and, more than all, of the stars that there, remote from the city's electric lights, can be seen in all their brillancy. The Picture of these girls walking on a country road might have given us even a little intimation that somewhere they had noticed some of the interesting things by the side of the road.

This camp is doing a great and good work in athleticism and in the development of womanhood, but why allow these young people to pass a gold mine where the gold lies loose on the ground, without telling them to pick up at least one little lump as a souvenir if for nothing more. The camp is having a good influence on the development of the girl physically, and the catalogue shows one girl in the act of thinking. An entire page is devoted to that, a page that, to my mind, is one of the most expressive and beautiful in the entire catalogue. It is marked: "Yallani Thinking. It is Good to Have Oviet Moments Like These." Notwithstanding all its excellencies there can easily be an improvement. That girl comes apparently from the city, and yet she is here seen surrounded by the things of the city-a couch and furniture. She could just as well have taught the value of sitting still on a log or a rock in the woods as she gazed at good old Mother Nature. She could mentally imbibe some of the woods and fields, woods and fields that she cannot see in the city. The reader will recall how Bradford Torrey said that his whole life was influenced by the sight of a man looking at Nat Shaw's baystack and the old barn beyond. It would have been better to have used that space to show that girl gazing, not at the pole and railing and floor of the tent, but, outside of the tent, at a tree or a cluster of wild lilies or the falling waters of a picturesque ravine.

These girls should be taken not to nature but into nature; not to have nature like a shell around them but to be a part and parcel of the very fiber of their being. They may return from the woods and the lakeside to their city

homes inspired and enriched by an intimacy with old Mother Nature herself.

MANUAL OF FRUIT DISEASES. By Lex R. Hesler, A. B., Ph. D., and Herbert Hice Whetxel, A. B., M. A. New City: The Macmillan Company.

This manual presents all the known facts with reference to the common diseases of fruits. It has been prepared primarily for the modern agriculturist, the farmer, the thinking fruit grower, but it will also be of service to all who have an interest in plant diseases. The fruits are taken up in alphabetical order. The discussion of the diseases proceeds in order of their importance and prominence in the United States. Particular attention is paid to the description and illustration of the symptoms, to the causes and to the generally accepted symptoms, to the causes and to the generally accepted measures of control. Technical details are omitted as far as possible and an effort has been made to present the matter in a popular fashion.

How to Live. By Irving Fisher and Eugene Lyman Fisk, M. D. New York City: Funk and Wagnalls Company.

The frontispiece is a magnificent photograph of our handsome, genial Ex-President, William Howard Taft. He is the chairman of the Board of Directors of the Life Extension Institute, Incorporated, and is himself personally a pretty good exemplification of that for which the society stands. There are also about sixty portraits of members of the Hygiene Reference Board. These portraits alone make the book worth its price. I am inclined to think that they are as important as the text as examples of physical development and desirable longevity. The volume is not large, but it is encyclopedic in character, covering, as it does, almost every question of living except the question of making enough money with which to live. Here you can learn what kind of house to live in, what clothes to wear, how to breathe, what food to get, how to work, play, rest, sleep, with miscellaneous suggestions as to general hygiene thrown in without extra charge. The book looks after not only the present generation but those of the future in an incresting postscript chapter entitled "Eugenics," with commendable sections on alcohol and tobacco. If we do not live forever, or at least for more than a hundred years, it surely will not be the fault of this book.

Laurel.

Like rose of the sunrise brought down from the sky,

These exquisite blossoms appear; The cup of earth's beauty they fill to the brim,

The crowning delight of the year. —Emma Peirce.



Mr. Dodson, a director of the American Audubon Association, has spent 22 years learning how to build bird houses that attract the birds. Wrens, blue-birds, martins, each must have its own e-pecial style house. The right kind—the Dodson Kind—brings back the bird families year after year. Their perfection has been a labor of love. If you want the birds next summer, get your houses now and set them up to "weather." The birds like them better.

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What He Paid for Pyrites.

A chemistry professor at the University of Kansas tells this story of a seedy looking man who stole noiselessly into a chemist's office and closed the door softly behind him.

"Kin anybody hear what I say in here?" he asked anxiously.

"Not a soul," the chemist assured him.

Whereupon the man produced a package, carefully wrapped, and handed it to the chemist, with the query: "What is this stuff, anyway?"

After examining the contents the chemist replied: "Why, that is iron pyrites, commonly known as fool's gold."

"What's it worth?" asked the seedy fellow.

"Oh, about \$4 a ton in carload lots." "Just my luck," exclaimed the questioner. "Blest if I aint the biggest fool in the world. I found a lot of that stuff on a widder's farm an' went and married the widder."-N. Y. Globe.

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THE BRYOLOGIST is the only magazine that will help you to study Mosses and Lichens. It is the bimonthly organ of a live society of 200 members. The Sullivant Moss Society, which includes moss students of all grades of achievements from the college president to the beginner, all anxious to help each other. Subscription, \$1.25 a Year. \$1.50 pays for membership in the society and a year's subscription to the Bryologist. Address Edward B. Chamberlain, 18 West 89th St., New York City.

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SOUND BEACH, CONN. Edward F. Bigelow, Editor

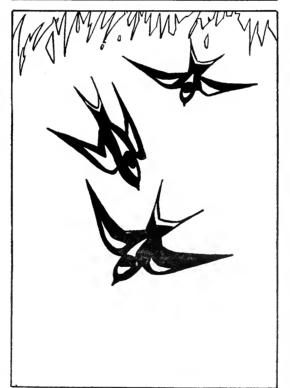
Vol. X

JULY, 1917

No. 2















DO NOT LEAVE FURS, WOOL-

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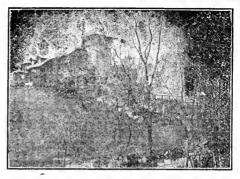
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(From an Editorial in "The Popular Science Monthly.")

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The May Manton pattern No. 9369 is cut in sizes from 10 to 14 years. The braiding design 848 gives three yards. They will be mailed to any address by the Fashion Department of this magazine, on receipt of fifteen cents for the dress, ten cents for the braiding design.

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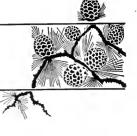
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ARCADIA



A Carload of Young Women at ArcAdiA.

The Inkowa Club of New York City, having chartered a special car for the trip, spent Memorial Day at ArcAdiA. The young women composing this club arrived in the early part of the forenoon and spent the entire day, participating in the forenoon in the exercises under the auspices of The Sound Beach Association in an extensive and patriotic program and community flag raising. They had a picnic lunch in the Forest of Arden and there staved until about 2 P. M., after which they had a regular ARCADIA outdoor program, consisting of demonstrations with honeybees, etc. At about four o'clock there was an indoor program of illustrated lecture, projection of microscopic objects, music by Edison Diamond Disc phonograph, etc., etc.

One of the most remarkable demonstrations with honeybees ever made with any party was made with these people, who were eager to get acquainted with the sweet, stinging insects and handled them freely. Twenty frames from two hives were held by members of the party with bared arms and No bee veils were used. hands. bees were freely shaken over the bare arms of many members, and taken up in their bare hands by the handful. There was only one instance of stinging, and that with one of the young women, who chanced to press against the bee with her hand. The weather was ideal and the bees performed to perfection. Members of the party expressed much pleasure and interest in the micro-projection, which, as they enthusiastically asserted, surpassed anything of the kind that they had ever seen.

Letters have been received from officers of the club, expressing the writers' pleasure and appreciation of that day's outing in nearness to nature.

Staten Islanders at ArcAdiA.

A large party, mostly of teachers, chiefly from Staten Island, with four friends from South Norwalk, spent Saturday, June 2nd, at ARCADIA. They had the entire program of the day, including the usual demonstration with honeybees, micro-projection, talks, lectures, etc.

This party was the first to use the new grills for outdoor cooking in The Agassiz Grove. These grills were made by Mr. Stephen I. Clason from old tires contributed by wagon Moulds of the local blacksmith shop; they are pleasingly successful for any They also form of camp cooking. used the supply of new dishes furnished by J. R. Evans & Company of Stam-These enterprising dealers in house furnishing goods have supplied, with an especial contribution of liberal size, an extensive equipment of plates, cups and saucers, knives, forks, spoons, platters, dishes, etc.

Our Faded Wistaria.

On the front door of our office we have a white wistaria that we especially prize, not only because of its intrinsic beauty but because of its rarity, but evidently this rarity was not appreciated by two women who went past the office, one of whom remarked, "Why, I never saw such a faded out wistaria as that one."

A Magnificent Range for the Serving House

In our efforts to have the Serving House of Little Japan perfectly prepared for visiting parties, we are delighted to announce that a fully equipped, first-class, modern range has been supplied by Abendroth Brothers, Port Chester, New York. Their advertisement appears in this number of the magazine. In addition, we want personally to express the highest appreciation of

ARCADIA

this magnificent kitchen stove that has every convenience that ingenuity and skilled workmanship can put into a range. It is attractive in appearance, and convenient and effective in use. What more could be required. As many of our readers will be interested in this range, we suggest that they write to the Abendroth Brothers at Port Chester for a catalogue and further particulars, mentioning The Guide to Nature.

A Magnificent Bank Building.

The Greenwich Trust Company has moved into its magnificent new building. The opening of the new quarters wa- made an occasion of appropriate ceremonies including the raising of a large flag, the gift of Mrs. Helen Adams Kelley, first regent of the Greenwich D. A. R. The wonderfully beautiful structure is indeed a credit to the management and to the town and is greatly admired. A very important feature of the bank is its storage facilities not only for ordinary protection of documents and the like, but for the dry air cold storage of furs, woolens and valuable rugs. Absolute security from thieves and moths is assured.

Sound Beach.

Sound Beach now has a competent man to regularly attend to the collection of garbage. Mr. Edward Clark has taken up that work and any resident in Sound Beach may give him an order and be sure that the work will be done not in a desultory but a thoroughly proficient manner. This is in accord with the spirit of general improvement of premises in Sound Beach. All along the line, in fact all the lines, of houses one may readily see this spirit of improvement that has come about largely through the increased interest in public welfare inspired by the enthusiastic meetings of The Sound Beach Associa-It would be hard to find any small community with a better community spirit than that of Sound Beach, and those who wish to keep their premises in a tidy condition will heartily welcome this new departure by Mr. Clark. His teams will be on the rounds for the garbage collecting work every day in the week.

A Delightful Typewriter.

VII

For office or home, a simple, convenient, practical gem of a typewriter is the new No. 9 Model issued by The Blickensderfer Manufacturing Company. Send for their new catalogue, No. 112, and you will perceive the moderation in my commendation.

There probably never has been placed on the market so convenient a typewriter as this. The editor is well acquainted with the manufacturing establishment and management, and personally assures every reader that the firm produces a high grade machine. To deal with the management is a delight. Every reader will be pleased with the dealings with this well-known manufacturing establishment of typewriters. At any rate, even if you do not want a machine now, it will be worth while for you to investigate this superior and moderate priced machine.

The Call to do Things.

Never in the history of the world was efficiency so timely as now. Everybody must do something with head and heart, and both in earnest. It is not a time for sham. It is the time for the enjoyment of real things, and a time when mechanics are especially needed and especially difficult to obtain. One can get along without a carpenter if he has any gumption in his head and skill in his hands, providing he likes to tinker with tools and has a cabinet so attractive as those put out by Hammacher, Schlemmer & Company. Now is the time to write them. See their advertisement on our fourth cover and send for circular No. 84.

An Efficient Summer Laboratory.

Every one interested in biology should send to the biological laboratory at Cold Spring Harbor, Long Island, New York, for its announcement for the summer of 1917. The laboratory is well equipped, and is convenient of access from this part of the country, as it is only about thirty miles from Manhattan Island, New York City, in one of the best collecting places along the entire coast. It is almost directly across the Sound from ArcAdia. The field students in their Connecticut shore excursion have been invited to spend a day at ArcAdia.

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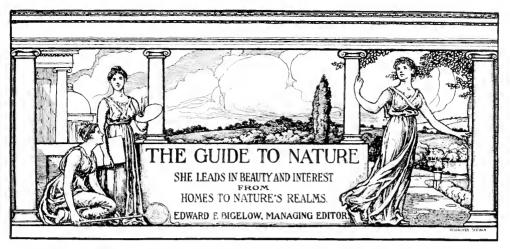
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92 PARK PLACE

(Cor. Summer Street)

STAMFORD CONN.

TELEPHONE CONNECTIONS



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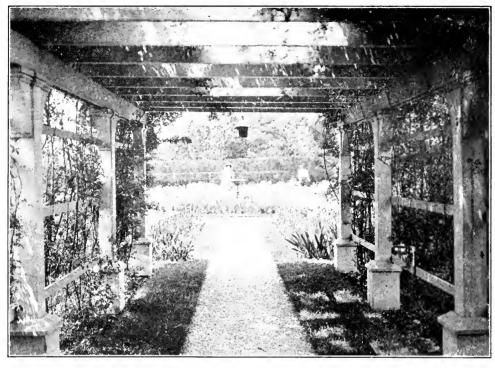
#### Color in the Garden.

From May 20th to June 1st Mrs. Neil Morrow Ladd's garden in Belle Haven, Greenwich, Connecticut, is a mass of bloom and color. For three hundred feet on each side of the central path

thousands of large and velvety purple blue iris (*Iris Germanica* Charput), in front of which are an equal number of cottage tulips, Picotee, present in their beautiful display of color a picture long to be remembered.



"IS A MASS OF BLOOM AND COLOR."



AN ATTRACTIVE VISTA FROM THE PERGOLA.

The "Picotee" tulip, catalogued as "Maiden's Blush," first appears as a clear white. Later the blush creeps from the edges, which are pointed and

reflexed, until the whole bloom is suffused with a deep pink.

The garden, formal only in its geometrical division, shares with no local



garden this prodigal treatment. Thousands of tulips have been planted to secure this effect, and hundreds are added yearly to fill the spaces which occur, no matter how carefully gardens are watched and cared for.

The planting about the bird pool is entirely of iris of different varieties

blooming in their turn.

Darwin, Rembrandt and Breeder tulips add new tones which are scattered through the rose gardens and borders. As a background great masses of evergreens and flowering shrubs afford a proper setting and divide the vegetable gardens from those devoted wholly to flowers.

This year Mrs. Ladd is devoting the most of her time to raising vegetables, planning to can and store the products of her garden for winter use. She is an active member of both the Greenwich and the New Canaan Garden Clubs.

#### The Master Hand.

BY HAROLD GORDON HAWKINS, WESTFIELD, MASSACHUSETTS.

My soul is a constant questioner. From early youth it has sought to learn, That which will be denied it to know Until, perhaps, that final, fulsome day When it shall learn that mystery of mysteries—

Death.

Enshrouded in the silence of the mystic night,

When the heavens are glorious with countless stars

And the silver moonbeams sleep on the murmuring river,

I stand enwrapped in its absorbing beauty. And in my soul the eternal question rises:

What master hand hath fashioned this, and why?

\* \* \* \* \*

Full often doth the path I follow lead me Through the dim recesses of a mighty forest.

And there I see a thousand majestic trees Rearing their hoary columns up

To the arching vault of heaven that bends above.

And rendering with the wind that breathes among their boughs,

A mighty harmony that swells within my soul

Into the ever insistent query:

What master hand has fashioned this, and why?

And beside the path that through the forest leads

There grew a tiny flower, delicate and small. Having the blue of heaven in its eye That caught my wandering gaze, and stooping low

I saw the trace of that same master hand that fashions all.

And again in my soul the same unanswered question rose.

With the first blush of spring there came a bird

Into my garden, and melodiously and low, He sang a strange sweet song of wondrous joy.

A song of melting tenderness, of beauty and of love

That thrilled my heart with its ecstatic glee. And caused my soul again to ask:

What wondrous power hath caused this joy, and why?

\* \* \* \* \*

And in this same bright month that brings the birds.

stand beside the waters of a swollen

That rushes in tempestuous fury from the North

Down to the surging waters of the sun-kissed sea.

And its mighty power inspires in me an awe That prompts again that ceaseless question in my soul.

And in my daily life a thousand scenes; A thousand signs of life, of strength, of power

Of wonder and of beauty, cause within my

That everlasting and unanswered thought to rise:

What master hand hath fashioned this, and why?

\* \* \* \* \* \* \*

Yes, my soul is a constant questioner. From early youth it has sought to learn That which will be denied it to know Until, perhaps, that final, fulsome day When, learning life's greatest mystery,—Death.

It shall also learn the mystery of the universe.

Shall learn WHAT master hand hath fashioned it, and why.

British authorities recommend for civilian families during the war time limitation to four pounds of bread, two and a half pounds of meat and three-quarters of a pound of sugar, per person per week.

For such is the fleeting character of all exquisite things. Nothing that is beautiful stays. As each sweet flower passes it is gone from us. Like a flower, the emotion belong to the hour.—Abram Linwood Urban in "My Garden of Dreams."

Sheep Go Four Months without Water.

Sheep on the Nebo national forest, Utah, go four and a half months without water except for such moisture as they get from the dew and the juices of forage plants.

Grazing sheep on a range entirely destitute of water is due to the increasing demand for forage and the efforts of the forest officers to find a place on the forest ranges for all the stock that

early in the nineteenth century, and was grown from the Selecta Orange.

As far as can be determined the budded orange trees through which the naval orange wood was introduced into the United States were obtained from a plantation by the Rev. F. I. C. Schneider, a Presbyterian missionary, who shipped them to William Saunders, then horticulturist, landscape gardener, and superintendent of grounds



THESE SHEEP HAVE NO WATER FOR FOUR MONTHS.

can safely be admitted. The area on the Nebo which has now proved usable by sheep is high and rocky, a portion of it being above timber line, and it has neither springs nor streams of sufficient size or accessibility to be used for stock watering purposes. The grazing season lasts from June 15 to October 31, and during this period of four and a half months the animals do not get a drink.—U. S. Forest Service.

#### The Naval Orange in Brazil.

A study of the Naval or seedless orange in its native home near Bahia, Brazil, has recently been made by plant specialists of the United States Department of Agriculture, and has established the fact that the variety of the naval orange now so largely grown in this country first came into existence at Cabulla, a suburb of Bahia, Brazil.

of the U. S. Department of Agriculture. Mr. Saunders grew the trees in the Department's greenhouses, and trees propagated from them were distributed to California and Florida. The variety proved to be unsuited to Florida conditions but in California it is very productive and highly valued. Practically the entire present planting of the variety in that State can be traced directly back to two of the trees sent there by Mr. Saunders in 1873.—The Agricultural Digest.

The Biological Survey reports that there are thirteen hundred and fifty different species of rodents in North and Central America. Many of these are very destructive. The remedy is to encourage the increase of their natural enemies, the hawks, owls and non venomous serpents.

#### Wordsworth and the Wayside Flowers.

BY MAUDE E. LEE, KNOXVILLE, TENN.
Praises of the little wayside flowers
were often sung by the great "HighPriest of Nature," William Wordsworth. Of him it could never have
been said:

"A primrose by the river's brim A yellow primrose was to him And it was nothing more."

The "bright daisy flowers" were especially dear to this poet as they were to Chaucer and to "sweet Spenser." Of the Daisy he says:

"Be violets in their secret mews
The flowers the wanton Zephyrs choose;
Proud be the rose, with rains and dews
Her head inpearling,
Thou liv'st with less ambitious aim,
Yet hast not gone without thy fame;
Thou art indeed by many a claim
The Poet's darling."

As seen with his eyes, the daisy is at one time a "nun demure," and then "a queen in crown of rubies"; "a little cyclops with one eye," "a silver shield with boss of gold," and again "a pretty star with glittering crest."

The Small Celandine, growing in the pastures and waste places, had been neglected by the earlier poets but he takes it for his very own, saving

"There's a flower that shall be mine, 'Tis the little Celandine."

"Ere a leaf is on a bush,
In the time before the thrush
Has a thought about her nest,
Thou wilt come with half a call,
Spreading out thy glossy breast
Like a careless Prodigal;
Telling tales about the sun,
When we've little warmth, or none."

The strawberry blossom catches his eye:

"Pull the primrose, sister Anne!
Pull as many as you can.
—Here are daisies, take your fill;
Pansies and the cuckoo-flowers;
Of the lofty daffodil
Make your bed or make your bower;
Fill your lap and fill your bosom;
Only spare the strawberry blossom!"

And finally even the grass has a story for him and he tells us that in the night:

"The streams with softest sounds are flow-

The grass you almost hear it growing."
He makes the little girl say to her pet lamb when it is restless:

"This grass is tender grass; these flowers
They have no peers;
And that green corn all day is rustling
in thy ears."

#### The Bible and the Camp.

An astonishing fact is that for every purpose under the sun the Bible may be quoted, but of all appropriate words from that book those selected by Miss George Ann Lillard of Chicago for her camp for girls in New Hampshire could hardly be excelled. They are: "They shall dwell safely in the wilderness, and sleep in the woods" (Ezekiel xxxiv, 25).

Through June Fields.
Kneedeep in buttercups, daisies,
In clover and Queen Anne's Lace,
We are wading across the hillside,
On the way to our trystring place.

June skies are soft above us, June opulence at our feet: And as we thread its mazes, We tread out odors sweet

A frolicsome breeze o'er takes us, And ripples the grasses tall, Where butterfly messengers hasten, And birds are couriers all.

The distant view enchants us,
Of river and wood and vale,
Where the drifting shadows of cloudland,
Their dusky pinions trail.

The sun on the pines adds nectar,
Which we sip as we saunter along;
On this radiant Summer morning,
All life seems a glad, sweet song.
—Emma Peirce.

#### An Old and Prosperous Nursery.

The editor of this magazine recently spent a most enjoyable day at the nursery of Thomas Meehan & Sons, Germantown, Philadelphia, Pennsylvania. This old-time nursery was established in '54 by Thomas Meehan, an English gardener and a thorough lover of plants. His business grew as Philadelphia grew and soon was not limited to the local trade but extended to all parts of the country.

#### School Nature League.

New York City. ·

To the Editor:

There used to be flower shows in some of the New York public schools three times a year. Later on to the flower exhibits were added other nature materials such as birds and their nests, shells, minerals, etc.

The founder of these exhibits was Mrs. Alice R. Northrop, formerly instructor of botany in Hunter College.

As the years passed these nature exhibits became more and more popular among the teachers, the school children and their parents. Nature materials were gathered, not only by the members of the committee but some were sent by the Museum of Natural History, by persons connected with the Bronx Park Botanical Garden and by many outside of New York City who sympathized with this work.

The success of these nature exhibits gave a new idea to the committee in charge, and the intention now is to make them permanent. These shows were given in the schools of the most crowded sections of New York City, where the children and their parents are too poor and too busy to go to the city parks or to the woods. The members of the new movement want to put these people, especially those of the younger generation, nearer to nature, to teach them to appreciate it, and through the love and understanding of nature to have some higher aims in life, and in this way to become better citizens. Through nature study the children will be brought nearer to the country, and perhaps in the future this organization may be the beginning of a back-to-theland movement.

This organization is called the School Nature League. It hopes to secure the cooperation of the Department of Parks, the Department of Education, the museums, etc.

It will maintain a place in which nature materials will be kept and will be open during the entire year under the

supervision of a curator.

The members of the League do not expect to concentrate their work on New York City only, but they hope to come in touch with schools outside of this city and to cooperate with them.

MARY HOLTZOFF.

#### An Appeal to Auto Owners.

The New York, New Haven and Hartford Railroad Company in its campaign to prevent accidents at grade crossings has issued posters urging drivers to use extreme caution in crossing railroad tracks. These posters are being displayed in conspicuous places along the New Haven lines.

The posters call attention to the fact that over 2,000 persons were killed in 1916 in grade crossing accidents. Also that the number of persons killed and injured by these accidents is increasing at the rate of 25 per cent. each year. In the first two months of this year, there were 10 accidents of this kind on the New Haven Road, in which 6 persons were killed and 13 injured.

#### A Prayer for the Boy.

Captain Scott's last letter to his wife, as he lay awaiting death in the relentless cold of the Antarctic, contains these words:

"Make our boy interested in natural history if you can. It is better than games. Keep him in the open air. Above all, you must guard him against indolence. Make him a strenuous man. The great God has called me. Take comfort in that I die in peace with the world and myself, and not afraid."

R. A. Pearson, brother of the newly elected President of the New York, New Haven and Hartford Railroad, has recently been designated as chief assistant to the Secretary of Agriculture at Washington, in the matter of the increased food production of the nation. He was former Commissioner of Agriculture of New York State and is now President of the Iowa State College, having been recently appointed by the Governor in charge of the increased food production of that state.

There is health of body and of mind in getting into a real relationship with things, because there is a reasonableness and a beauty of the nature of things, but such a relationship requires that man shall know himself as man, and shall not lose sight of this obligation as man.—Abram Linwood Urban in "My Garden of Dreams."



The Heavens in July.

BY PROFESSOR ERIC DOOLITTLE, OF THE UNIVERSITY OF PENNSYLVANIA.

The July evenings witness the complete disappearance of the beautiful group Gemini and of the faint and mythologically interesting Cancer; the Water Snake has plunged almost wholly below the western horizon, while the

The July Stars.

The striking midsummer group of the Scorpion has now reached its highest position of the year and is seen exactly on the meridian well up from the ground in the south. The interesting group of the Archer with its wealth of double and multiple suns and whose western stars form the well-known

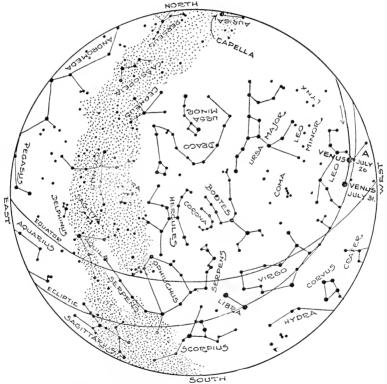


Figure 1.—The Constellations 9 P. M. July 1. (If facing south, hold the map upright. If facing west, hold West below. If facing east, hold East below. If facing north, hold the map inverted.)

beautiful Capella which leaves our evening sky for but a few weeks each year and which is so near the Pole that north of latitude forty-six degrees it does not set at all, is now almost exactly on the horizon in the extreme northeast.

"Milk Dipper," may be seen closely following Scorpion to the east, while the beautiful Northern Cross, the bright Aquilla and the strange little group of the Dolphin, often called "Job's Coffin," have now all mounted high in the eastern sky. Toward the beginning of the month Mars, Jupiter and Mercury are all morning stars, though on July 12 the last planet will again enter the evening heavens. Two weeks later the beautiful Saturn, which has been so conspic-

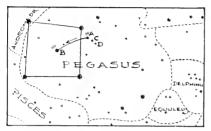


Figure 2.—Showing the path of the new comet among the stars during the month of July.

uous and interesting an object throughout the winter, will itself pass to the west of the sun and become a morning The bright planet Venus, however, will remain shining in our evening heavens throughout the month and this is moving so rapidly eastward among the stars that each evening it is seen with less difficulty as it shines in the twilight glow. From now on until the end of the year this beautiful world will continue to be the most beautiful object in the evening heavens. It will continue its motion away from the sun until November 30; at this time it will shine with one hundred forty-five times the brightness of a first magnitude star, and for a month more it will continue to grow still brighter.

## The Eclipses in July.

As an eclipse year the present year is a remarkable and unusual one, since it will witness no less than seven of these phenomena; this is the greatest number of eclipses that can under any circumstances take place during any one year. Three of these eclipses have already occurred; two will occur during the present month, while of the remaining two only the last one—that of December 27—will be visible in the United States.

On July 4 the full moon will enter the great shadow of the earth at 2 hours 52 minutes P. M. (Eastern Standard Time), and it will pass so nearly through the shadow's center that it will not fully emerge until 3 hours 33 min-

utes later. Since even by the latter time the full moon will not have risen to observers in the United States, this interesting eclipse will be wholly invisible to us. It will be seen, however, from throughout Europe, Africa and the South Atlantic ocean and from Western Asia.

The full moon of July 4 is thus an eclipsed moon. Two weeks later, when our satellite has become new, its extreme upper edge will pass over the lower edge of the sun's disc, but so nearly does this eclipse escape occurring altogether that under the most favorable circumstances only one-twelfth of the sun's diameter will be seen to be hidden. This eclipse will be visible only from points in the Indian and Antarctic oceans.

#### Wolf's Comet During July.

There are three comets now in the heavens, but two of these are very faint and it is upon the third that the interest of astronomers principally centers. This third comet is the one which since its discovery, a year ago, has been drawing nearer to the earth and to the sun and which during this time has been kept under constant observation at the larger observatories. The brightness of this remarkable object has steadily increased and it was strongly hoped that when the comet had attained its least distance from us it might become visible and perhaps even conspicuous, to the naked eye. now, however, seems very improbable, but it will almost certainly become bright enough to be seen in a comparatively small telescope.

Since last March the comet has moved entirely across Aquilla and Delphinus, attaining by July 1 a position a little to the west of the borders of the Great Square of Pegasus, as shown at the point A of Figure 2. The observer may find it on this evening by first bringing the upper star C of the pair CD to the center of his telescope; the comet will then be exactly 2 minutes 33 seconds following and 22 minutes 22 seconds north of this star.

During July the comet remains within the Great Square, pursuing the path AB; its distance from us will diminish in this interval from 107,000,000 to 95,000,000 miles, and although by August

21 the least value of 92,000,000 miles will be reached, it is during the last few days of July and the first days of August that the comet will attain its greatest brightness. At the present time this comet has a small, condensed head and a diffuse tail which in the largest telescopes can be traced to a distance one-fifteenth as great as the apparent diameter of the moon.

#### The Planets in July.

Mercury enters the evening sky on July 12, but will remain too near the sun to be observed during the month. It will attain its greatest eastern elon-

gation on August 22.

Venus sets 1 hour 15 minutes after the sun on July 1 and may then easily be detected shining in the twilight glow near the northwestern point of the hori-In its eastward motion it will pass to the north of Saturn on July 4 at 7 P. M.; the two planets will then be separated by only about one degree, and they may both be seen together in the telescope. On July 6 at 6 P. M. Venus will similarly pass to the east of Neptune. The latter planet may perhaps be located in the telescope at this time, as it will then be exactly one degree forty minutes south of Venus. As it will be very low in the sky, however, it can only be detected with difficulty at this time. Throughout the month Venus will move eastward and southward through the constellation Cancer and into Leo, along the path indicated in Figure 1. It will pass the bright star Regulus at A on July 26. The two objects will then form an interesting field in the telescope.

Mars rises two hours before the sun on July 1 and this time is increased to two and one-half hours by July 31. Jupiter is in the same part of the sky, but nearly an hour farther west on July 1 and two hours farther west on July 31. On the former date it rises two hours and forty minutes earlier than the sun, and on the latter no less than four hours and thirty minutes earlier. By the end of the month it is thus high in the morning sky. Both planets are to be looked for far to the north of the east point of the horizon in the early dawn.

Saturn may still be seen during the first days of the month, since on July 1 it sets an hour and a half after sunset. This time rapidly decreases, however, and the planet is soon lost in the sun's rays. It passes to the west of the sun and enters the morning sky on July 27

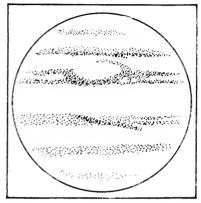


Figure 3.—A recent drawing of the planet Jupiter, showing that the outlines of the "Great Red Spot," which first appeared in 1878, can still be seen. Jupiter, which for many weeks has been lost in the sun's rays, is now mounting high into the morning sky.

at 4 P. M.; ten hours later it passes the planet Neptune, but both worl's are then far too close to the sun to be observed.

Since passing the summer solstice the sun's motion southward among the stars is steadily continuing, and we see the effects of this in the shortening of the days with the consequent lengthening of the nights. The change is, however, as yet not very strongly marked, the length of the day diminishing from 15 hours 4 miuntes to 14 hours 22 minutes during the present month. It is toward the latter part of August that the acceleration of the nights' increase will begin to become most noticeable.

On July 3 at 3 P. M. our earth will be at its greatest distance from the sun; at this time we will be 3,100,000 miles farther away from that body than we were during the early days of last January.

#### The Lake.

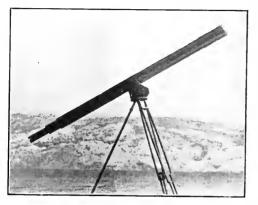
The lake a burnished mirror is
For sunrise glories bright;
And when that orb has run its cour
Reflects its last good night.
—Emma Peirce.

## A Three Inch Telescope for One Dollar.

BY F. H. VAN HISE, SUMMERLAND, BRITISH COLUMBIA, CANADA.

At Dr. Bigelow's request I describe a telescope that I have made.

The lens (A) (see drawing) is one that we have had for several years. It



THE ONE DOLLAR TELESCOPE.

cost fifty cents at a receiver's sale. It is three inches in diameter, and has a forty-eight inch focus. The eyepiece (H) is a tripod microscope that cost

fifty cents.

The main tube is made of two pasteboard mailing tubes, each two and three-quarters inches outside diameter, and twenty and one-half inches long (one was a little smaller, so I glued a piece of building paper over it to make it of the same diameter). Then I glued another piece of paper over the two to fasten them together. M is a pasteboard mailing can, three inches in diameter and six and one-half inches long, with a tin screw top and tin bottom. I cut off the bottom and cut out the screw top, so as to leave only a rim (B) that would hold the lens (A) in place. The tube F is one and one-half inches in diameter, eleven inches long. and slides in tube E for rapid focusing. The legs of the tripod microscope (eyepiece) fit over the tube F, and are held

in place by wrapping them with string and gluing paper over the string.

The upper part of H screws out of the tripod part for focusing. This I

use for the fine adjustment.

The tube E fits into another tube that fits into the main tube, and the latter fits into M. To make these tight, I glued paper around the smaller tubes

and then altogether.

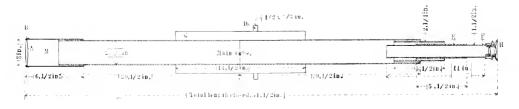
I fastened two pieces of wood (C) one inch square and fourteen and onehalf inches long, one on each side, by gluing strips of cloth along the edges, and strips of tin one-half inch wide, tacking one end of the tin to one piece. passing it around the tube and tacking it to the other piece. These are to stiffen the tube and to hold the pivots (D) which are one-half inch in diameter and extend five-eighths. Before fastening the pieces C, I found where the telescope balanced and at that point I bored the holes for D. Before fastening them together, I blackened the tubes on the inside with turpentine and lampblack, using an old toothbrush fastened to a rod. I covered the outside with wrapping paper, and painted it with varnish and lampblack. I made the tripod head of thin boards (see photograph). When I wish to use it, I bolt it to a camera tripod.

This telescope magnifies about fortynine diameters. I can see the four brightest satellites of Jupiter and the rings of Saturn (the latter not very plainly). The mountains on the moon

are well shown.

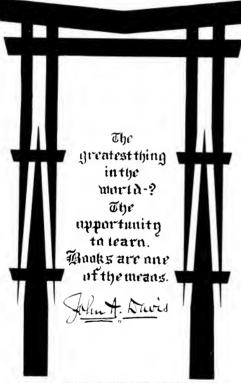
The lens is not a chromatic. It shows prismatic colors around the object (Jupiter and Saturn are beautiful in colors!) but it is a good deal better than a field glass.

The forests of Oregon and Washington invade an unoccupied area at a rate between one hundred and fifty and three hundred feet during each generation.



## What is the Greatest Thing in the World?

Mr. John A. Davis of Baltimore, Maryland, gives as his answer to the question, "The opportunity to learn." He states that as a matter of mere cu-



A SOMEWHAT UNIQUE BOOKPLATE.

riosity he has asked many the question and no one has given his answer. Indeed many of those questioned seemed not to have ever given any thought to the tremendous value of the opportunity to learn. He distinctly states that he does not consider learning itself the greatest thing in the world but rather the opportunity to learn which every one has.

Think, my friends, of that point of view. No matter what you favor—love, science, religion, patriotism; no matter what the value of your position in life, it is all based on the opportunity to learn the details and to develop the capacity to enjoy it.

Mr. Davis is so enthusiastic from this point of view that he has designed a somewhat unique bookplate, utilizing a little of the Japanese torii point of view, though not attempting to adhere absolutely to the Japanese style.

#### Connecticut Forbids Trespassing.

For many years Connecticut has been among those states in the country that have not by law attempted to prevent the unnecessary waste of life due to trespassing upon railway right of way.

The Connecticut Legislature has recently passed, however, and Governor Holcomb has just signed, a bill that should do much to eliminate the evil in the state.

Over 5,000 persons in the United States are needlessly killed each year while using the railway right of way as a public highway. The New Haven Road has carried on an active campaign to reduce accidents of this kind on its property. It has long been recognized by experts, however, that no material lessening of the evil can be obtained until stringent laws are passed and strictly enforced.

The act of the Legislature and Governor of Connecticut is an important step forward in the suppression of the treaspassing evil in Connecticut.

#### Profit in Patriotism.

It isn't often that the patriot has an opportunity to serve his country and at the same time be handsomely paid. The volunteer's reward consists usually of honor, glory, medals or monuments.

The farmer who strains every muscle to increase production this year will be paid in full. He is not asked to give away the surplus of his soil. He is assured higher prices than he has ever been able to get in times of peace.

He may help to free the world of the yoke of military despotism if he helps to win the war. He may also free himself of a yoke of debt that has weighed heavily upon him for a decade.—Country Gentleman.

The way to health for our artificially heated life is not back to the wild, but back to the sweet old ideals of home and hospitality and unselfishness.—Abram Linwood Urban in "My Garden of Dreams."



(Perhaps Pardonably Personal.)

For Forty Years a Teacher.

On June 6th Dr. Edward F. Bigelow went to Montville, Connecticut, to celebrate, with the Center School of that town, an interesting occasion. It has been forty years since he first went to Montville to teach school. time he was seventeen years of age, and had been called from Bacon Academy. Colchester, to take charge as principal of the Montville Center School. although he had completed only two years of his course at the academy. The situation at Montville was peculiar. The authorities of Bacon Academy had been requested to send to the Center School a teacher big enough and robust enough to protect the school and to prevent himself from being forcibly ejected by the "big" boys. In those days the pupils in many schools considered it highly creditable to themselves if they threw the school-teacher out of doors. This was usually done on the first day. Having tossed him into the bushes, they told him to head homeward, and he usually obeyed. The request to Bacon Academy was for a teacher who could stay in the schoolroom. It was not necessary for him to know anything else than how to stay. Staying qualities were more important than much learning. As Dr. Bigelow was about six feet tall, weighed nearly two hundred pounds, and had come out of the wild woods as a hunter and trapper, where he had been trained by a prize fighter, it was thought that he might fill the bill, because "Bill," the famous hunter and prize fighter, had drilled him and taught him certain valuable movements that might astonish those "big" boys. The new teacher stayed in that schoolroom. He did the teaching. He was not taught by being thrown out of the window. If any one took his departure by means of the window, it was not the new teacher. Several of the pupils were older than he but he stayed with them. And, after an interval, they stayed with him. Recently he told the story of his preliminary training, and of some assistance that he had rendered to a woman who had been to Norwich to buy a sewing The story, entitled "Prize machine. Fighting and Sewing Machines," was published in "The Sewing Machine Times," New York City. Copies of the article were circulated in the Montville school together with a recent essay from "The Christian Endeavor World" by a naturalist friend of Chattanooga, Tennessee. These two articles resulted in an invitation for the former teacher to visit the school after forty years and give his former pupils an opportunity to do what at that time they were compelled to leave undonethrow him out of the schoolhouse. The naturalist jocosely said that it might be a dark and deep-laid plot but he is still six feet high, he still weighs an eighth of a ton, so he went.

The present Superintendent of Schools suggested that the old teacher deliver a lecture, the proceeds to be devoted to the taking of the senior class of 1917 to the capital at Hartford. The exercises included a roll call with responses, a history of the school, kind and regretful words for the pupils that have died, and a general rally of the old-time boys and girls, every one of whom is considerably more than a half century old, although that is never mentioned. There were also addresses to the present pupils and exercises by

Among the pupils of the reunion were some of the most prominent men and women of Montville and of various other places, including a present Representative of the Legislature, a Judge of Probate and so on. The oldest pupil of the school, now nearly fifty-nine years of age, presided. Though he holds a prominent position in a large

manufacturing establishment, Dr. Bigelow called him his senior pupil and insisted that he come to the front of the teacher's desk, put his heels together, turn his toes out at an angle of fortyfive degrees, make a bow and recite a little ditty, "Popping Corn," as he recited it forty years ago.

The lecture by Dr Bigelow was given in the chapel and then there was an adjournment to the schoolhouse near-by for the roll call. Dr. Bigelow went into the schoolhouse and wondered why his pupils delayed their coming. After a somewhat impatient wait of a few minutes he went out to find these prominent men and women on the playground and to be rather indignantly informed that they were not in the habit of coming in after recess—only forty years this time—until he rang the school bell. Recess immediately closed.

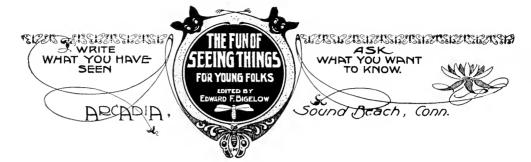
At the close of his principalship of this school forty years ago Dr. Bigelow returned to Bacon Academy, but off and on, with intercalated preparatory, college and general biological laboratory work, he has always been a school teacher. At present he is a member of the faculty of the Wabanaki School at Greenwich. Although he has for the last thirty-two years been printer, publisher and editor, he has never lost his interest in the schools nor in school work. During the greater part of that third of a century he has visited schools at least once every week, and has been associated with many private institutions. He was a visitor at The Castle, Tarrytown-on-Hudson, New York, every Friday and Saturday for ten years, and in addition to this work, which he considers delightful, he is the Editor-in-Chief of this magazine, the official organ of The Agassiz Association of which he is President, and which is the exponent of Louis Agassiz and his teaching. He admires Louis Agassiz and takes pleasure in continuing Agassiz's work, not only on account of his admiration for Agassiz as a scientist, but chiefly because of that famous man's missionary spirit as a teacher. Dr. Bigelow's favorite expression is, "I have always been an editor with a school-teaching attachment," so strong an attachment that he is constantly in those schools in which he has been engaged as a teacher, in universities, colleges, teachers' institutes, where he has been an instructor of teachers. In all the world there is no grander calling than that of a teacher. Upon that profession depends the molding of every human mind. The editor may help to mold public opinion, but his work can never equal that of a teacher. The teacher takes the mind before it has become case-hardened and he can, at least to a certain extent, do what he pleases with it.

#### One of the Boy Scouts' Great Needs.

"The Boy Scouts of America," in theory and practice, is the best organization that was ever established for boys. The Scout movement has done more to develop true manliness in boys than any other organization has ever done. It takes into consideration the development of the physique, kindness for others, regard for religion, love of education, and arouses a commendable spirit of protection and patriotism.

Within the last few months increased efforts have been made to develop the ability to see and to draw correct conclusions from what is seen in the world. Last June, Edward F. Bigelow was elected Scout Naturalist, and since then he has been in correspondence with a large number of boys and has conducted a department, "On Nature's Trail," in "Boy's Life" This work was undertaken for a nominal sum that just about covers the cost of correspondence. Further development of this feature of "Boys' Life" is needed. To that end an appeal is made for contributions, all of which will be turned over to the Boy Scouts of America at their New York office, or may be mailed directly here. The Boy Scout movement has brought many of its features to a high degree of perfection, but we believe that the ability to see and to study the world of nature needs assistance in its development. Further particulars will be given to any one who will inquire.

Your lively and most instructive magazine always gives me much pleasure and I always find something of real interest in it.—Professor Wesley R. Coe, Zoological Department, Yale University, New Haven, Connecticut.

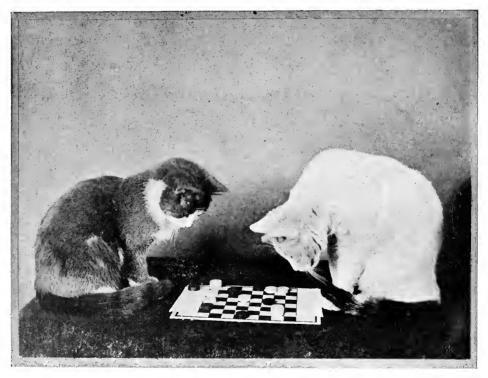


## Black and White Studying Black and White.

We are indebted to "American Photography" for the accompanying illustration of a marvelously good study of

will see themselves mirrored in these magnificent studies.

The photograph was taken by Mrs. W. Durrant, who is not only a skilled photographer but seems to possess unlimited patience with cats and a kindly



THE SHARPER YOU SEE THINGS THE MORE FUN THERE IS.

cats. The photographer is to be congratulated upon securing such natural and expressive poses in her subjects. The attitude is perfectly unnatural from the cat's point of view, but it is ideally humanized. The expression of the cats' faces will bear careful examination, and many checker players

regard for them. Only a perfect sympathizer with the cat nature could have obtained such results.

Everywhere is beauty spread,
All our paths to it have led;
Magic mantle o'er the earth,
To add to its intrinsic worth.
—Emma Peirce.

#### Blue Jay and Luna Moth.

BY BESSIE 1. PUTNAM, CONNEAUT LAKE, PENNSYLVANIA.

The article on "Frail Wanderers of the Night" in the June number of THE GUIDE TO NATURE has an added interest to the writer because of a near tragedy recently witnessed.

A member of the family standing at the window was surprised by seeing a blue jay dash suddenly against the sill and as suddenly retreat to a near-by apple tree. Almost instantly its mate repeated the performance and was driven back in the same way. Then the source of the attraction was discovered—a Luna moth clinging to the window ledge.

The girl went out to rescue the moth, but before she could reach it one or two other attempts had been made by the birds, which were thwarted by others in the room. After the Luna had been removed to a safe place, the jays made other dashes to the window and then retired to express their disapproval in the loud tones peculiar to their race. It is evident that this beautiful moth has its perils, increased when it alights on a white surface instead of upon the green foliage among which its green plumage is less conspicuous.

## Child Life on the Farm at the Present Time.

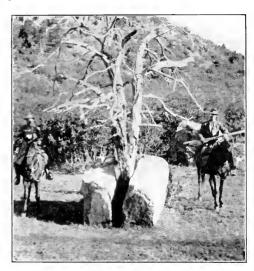
Is child life on the farm at present different from that life in the past? Yes, it is. It is vastly different from what it was fifty years ago; but wait a minute. Is child life on the farm less valuable in the training for a future enjoyment of nature? An interesting editorial in the "Nature-Study Review," congratulating John Burroughs on his eightieth birthday, raises an interesting question. Let us think about the following from that editorial:

"His child life on the farm gave Mr. Burroughs his background as a naturalist; he writes 'When I began in my twenty-fifth or twenty-sixth year, to write about birds, I found that I had only to unpack the memories of the farm boy within me to get at the main things about the common ones. I had unconsciously absorbed the knowledge that gave the life and warmth to my page? What a pity that the farm home

of to-day is not preparing more naturalists in this natural way! The farm child of this age sems to us to be always facing the road made smooth for the whirring wheels of 'the Ford,' and has turned his back to the woods and fields, but maybe this is undue pessimism."

## Expansive Power of Tree Growth. BY H. E. ZIMMERMAN, MT. MORRIS, ILL.

Accurate experiments have been made by scientific investigators to show the remarkable power of growing plants. It has been found that com-



A TREE SPLITS A ROCK.

paratively delicate plants have, in their growth, lifted weights totaling hundreds of pounds. Some years ago a picture was published in Strand magazine, showing how a plant had pushed itself up through a hard pavement, constructed of asphalt, gravel, etc. The growing power of a tree, especially after it has attained considerable size, is correspondingly greater. A good illustration of this is shown in the picture accompanying this article.

Contrary to what many people think most rocks have seems or cracks of varying definiteness, or they eventually develope them through the action of rain, frost, and sunshine. Into these cracks, however minute, the rootlets of small plants penetrate, carrying with them a little humus, to decay and to be followed by other roots. Moisture follows which freezes and cracks off small

rock-particles, when larger roots find their way in, carrying more dirt. The crack widening and deepening through the course of many years, becomes filled with drifting dirt, when, perhaps a seed of some tree blows into it, and then the real process of rock-splitting begins on a larger and more rapid scale. If the rock has a well developed seam the expansive force of the roots of a tree is likely to split it entirely asunder. This is proved in the case of the rock shown in the illustration.

As the rock breaks and chips and disintegrates, it contributes to the vigor of the plant, since rock particles contain the elements of plant food.

The Butterfly and the Flower.

BY ADDA BAUMAN, PITTSBURGH, PENNSYLVANIA. With widespread wings
She gayly fluttered by;
And I just bowed, with a smile;
For she was only a butterfly,
And I the flower that beguiles.

Perhaps she'll come back This way some day, And I'll bid her "bide a wee." I'll give her a treat Of nectar sweet That's stored in the heart of me.

She is a coquette, that I know, Just takes a sip and away she goes To seek the heart of another flower, Resting but a moment on leafy bower. She is a beauty, rare and most gay, And that is just a butterfly's way.

#### Curious Stone and Tree.

Mr. Leo E. Mingus of Battle Creek, Michigan, is an expert photographer. In his perambulations with the camera, he always looks not only for the ordi-



AN EAGLE IN STONE.



TWO OAKS GROWN TOGETHER.

nary, beautiful things of nature, but for the things that are special.

He contributes to this number a photograph of a rock that he says looks to him like nature's attempt to be patriotic, as she has there sculptured Uncle Sam's eagle in stone. He also sends a photograph of an oak tree, remarkable on account of the curious grafting of nature with some aid from man. The larger tree is about two feet in diameter; the smaller, one foot and a half. It is generally believed locally that the Indians grafted these trees together, and hence the combination is known as "the old Indian landmark." Who can offer a more plausible explanation?

#### The First Dandelion.

BY CHARLES NEVERS HOLMES, NEWTON, MASS. When 'mid reviving field and fell

Spring's cheerful presence comes to stay. Ere o'er reverdured hill and dell

Awakes the flowerage of May, Upon the lawn's fresh growth of green,

'Neath April's fickle shade and light,

A dandelion blooms unseen

Like saffron flame in sunshine bright.

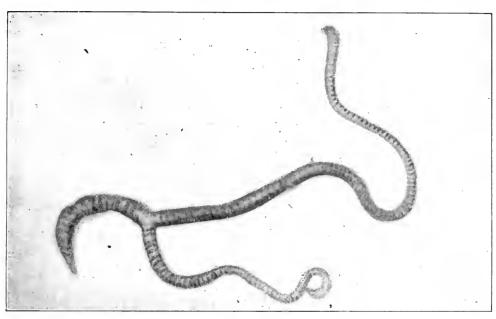
#### Animals with Extra Tails.

The accompanying illustration of a double-tailed earth-worm was sent to us by Mr. H. E. Zimmerman, Mount Morris, Illinois. The picture was forwarded to Professor T. H. Morgan, of the Department of Zoology of Columbia University, New York. He replies as follows:

"Worms like the one in the picture

This photograph was sent to Professor E. A. Andrews. He states as follows:

The double earthworm figured is a most interesting case and unusual in that it is divided so far forward toward the head, while all other double-tailed worms known to me have the division near to the hind end and far from the head end. Of the two tail ends shown.



HAVE YOU EVER SEEN AN EARTHWORM LIKE THIS?

which you sent me are occasionally found and have been recorded from time to time. They are due in practically all cases to an injury to the worm. In some instances, the two new tails have grown out from the broken end of the worm. In other cases, the injury on one side, involving the nervous system, gives rise to a new tail; or, to be more accurate, continuation of the body on one side. Professor E. A. Andrews has described a number of worms of this kind that he has obtained.

"I think no one has yet been able to produce these double-tailed worms by artificially injuring the side, yet the same thing has been done in salamanders, where double limbs have been produced by making wounds of certain kinds on the stump of the old limb. Double-tailed lizards are well known and they, too, arise through injury to the old tail."

one is evidently much smaller than the other and this is in harmony with the findings in most all such cases of double tail, so that the assumption that one tail part arose as a sort of side bud from the main trunk is a natural one. It is unfortunate that a sharper photograph was not obtained and that a complete account of the anatomy is not available, as from it one might hope for more basis for inference as to how the monstrosity came about.

"The great interest that attaches to all such cases of double ends, whether of worms of of double-headed calves, snakes, turtles and the like, seems to be in the hope they hold forth that from complete knowledge of the 'mistake,' or abnormal, we may get a clearer view of the causes of the average or normal.

"When some one shall discover a method of inducing such double ends in earthworms, we may the better understand why such cases are so rare—
a mere score on record amongst very
many thousand normal worms that
have been studied—and gain some inkling of the reasons why the normal anianimal is expressly *one* rather than more
or less, two or more."

#### One Hundred Thousand Tramps.

BY ROBERT S. WALKER, CHATTANOOGA, TENN., IN CHRISTIAN ENDEAVOR WORLD, BOSTON.

What do you do when you quit your work for the day? Do you go home

ravines, and over the mountain-tops. It reads like a romance. It takes determination and muscle to do it. Dr. Bigelow possesses both. You say that if you were really young again you would not mind it? Dr. Bigelow had a fifty-seventh birthday a short time ago. He is in his prime, and naturally expects these walks to keep him young. This is why his lectures, his writings on nature, etc., are so refreshing, like the fragrance from the cut flowers.

Dr. Bigelow's advice to young and old alike is to "hit the woodland trail"



Cut by courtesy of "The Christian Endeavor World."

EDWARD F. BIGELOW ON A TRAMP WITH NATURALIST ROBERT S. WALKER OF CHATTANOOGA, TENNESSEE.

and go to bed, or do you go out in the great outdoors and see what nature has locked up in the secret chest? Here's one man who never misses the opportunity to go on tramps after his day's work is over, or the tramp may be for a full day if he has a day to devote to walking.

Dr. Edward F. Bigelow has taken annually on an average more than 4,500 boys and girls on natural-history excursions, through fields, through marshes, through woodlands, through

if you would be strong mentally, morally, and physically.

At Scarborough, in Yorkshire, England, the sea is rapidly cutting back into the land; with the result that there has just been laid bare there what seems to be the stock in trade of a prehistoric dealer in bronze weapons, of date about 1000 B. C. Twenty objects have turned up, some fresh from the casting and unpolished; others finished and ready for the market.

#### Black Eggs.

BY RICHARD DOERING, BROOKLYN, NEW YORK.

At home we were all lovers and students of nature. Besides a hortus siccus, we had diverse scientific collections, and amongst these a collection of the birds' eggs in our region. Distinct from the latter we also had a special collection of the eggs of chickens, pigeons and other domesticated birds. There were, for instance, hens' eggs of all sizes, some as small as a dove's egg, others as large as a goose egg. The colorations too were manifold. All tints, from snowy white to almost orange, were represented.

One day a boy brought us a package containing hen's eggs that were black. His parents had fed their chickens with the acorns of the red oak, and these had been the cause of the unusual coloration. The tannin contained in the acorns had entered into chemical combination with the lime of the eggshells which contained enough iron to form a layer of ink.

#### Pitcher-leaved Ash.

Professor Shull, well-known for his work at the Long Island Station for Experimental Evolution, asks for information concerning the "pitcherleaved ash."

It appears that certain ash trees—the discovery is Professor Shull's own have one or more leaflets nearly every leaf of which is a peculiar pitcher shape. This is especially true of the terminal leaflets, and is most readily observed in the young tree. When this variety was first reported in 1905, it seemed probable that the single grove at Cold Spring Harbor is unique—the starting place, it appeared, of a new kind of tree. Within the year, however, two new localities have turned up in western Pennsylvania; and it becomes highly probable that there are others in the country.

Professor Shull asks, therefore, that naturalists and observers shall, during the coming spring and summer, watch for these pitcher ashes and report to him any findings. He desires in particular to know the extent of area covered by the observation, and the number of normal trees seen as well as pitcher-leaved trees. Negative information is

also valuable—the certainty that the new variety does not occur in each region.

Here is a chance for every observer, no matter how inexperienced, to do his bit toward the progress of science. Information should be sent to Professor George H. Shull, 60 Jefferson Road, Princeton, New Jersey.

## Potato Inclusions. New York City.

To the Editor:

I was interested in the article that tells of a "beechnut" that was found in a potato. A similar event occurred in some of our potatoes last winter, only the objects found were "chufas," a sort of sweet grassnut. I rather question the statement that the objects in the potatoes were beechnuts and hazelnuts. but I can understand how a growing chufa could penetrate the growing tu-The potatoes were probably planted in a field formerly given over to chufas. I can see no reason why the growing potato should enclose beechnut or a hazelnut any more readily than it would grow around a pebble or other inert substance in the earth. I do not remember that I ever heard of a pebble in a potato no matter how stony the ground in which it was grown. A series of experiments to throw light on this matter would be interesting. I am inclined to believe the potato will not enclose any such substance, but if potatoes and chufas be grown in the same box I should not be at all astonished if many of the potatoes might be penetrated.

Yours very truly, CLEMENT B. DAVIS.

## Beech Nut Included in Potato. Detroit, Mich.

To the Editor:

I have noted the remarks of Mr. C. B. Davis in regard to potato inclusions and his doubts as to their being beech nuts or hazel nuts. I wish to assure you and Mr. Davis that these articles were certainly found in the potatoes! Most of these nuts were eaten when taken from the potatoes and I imagine no one could mistake the flavor of a nut or confuse it with that of a "chufa" tuber. If you will closely observe the

illustration in the April number of THE GUIDE TO NATURE, you cannot mistake the nut at the left for anything but a beech nut, at least no one who is familiar with the nut in question, would do so. The inclusion at the right is not a nut, but, on the other hand, it may be a chufa (Cyperus esculenta) stolon and tuber. There is nothing unusual in a growing point penetrating some other and obstructing vegetation; in this instance, the axis of growth may have differed from that of the potato so radically that it early became separated from the parent plant by the breaking of the stolon, thus giving the potato a chance to grow around it and to completely im-I wish to emphasize the fact bed it. that beech and hazel nuts were potato inclusions. How they got there, I do not know. I offered the only explanation that occurred to me or that seemed feasible.

Yours very truly, OLIVER ATKINS FARWELL.

#### Foreign Substances in Potatoes.

Bayshore, Long Island, New York. To the Editor:

I was much interested in the article in The Guide to Nature for April about nuts in potatoes, because I have found several and to-day while peeling potatoes found another though much smaller one than those previously found.

From the article I judged you had seen only the photograph, so I am sending the one found to-day and another which has become dry and the surrounding potato very hard. I notice that the potato has turned pink in the other half of the cavity formed by the nut.

Very truly yours,
Mrs. Frank Watts.

Comparison between the British and French troops fighting side by side make it appear that the pound of meat in the daily allowance of the former is too large for the highest efficiency, and that the much smaller ration of the French and Italians is really better for fighting men. Our own army receives one and a quarter pounds of meat per day, while many civilians, who need a great deal less, get even more.

An Editorial Inspires a Song.

I have received from our young friend and talented Member of The Agassiz Association, Winifred Sackville Stoner, Jr., the following song.

In sending this she writes as follows: "I wrote this little song after reading one of your articles on "Beauty." Ergo the song is yours and I shall be glad to contribute it to The Guide to Nature. The air to which it can be sung is that of Mother Stoner Lullaby."

#### Beauty in You and in Me.

Beauty, my kiddies, belongs all to you It is around you in all that we view. Throw out your love rays and use your good eyes

See it each moment in some glad surprise.

All things are beautiful each in its place Even in crawling things we find a trace. In frogs and lizards, toads, snakes and in worms

Yes, even in smallest of wiggling strange germs.

Beauty is fitness so scientists say, And if we're useful to some one each day We'll gather rays of this treasure on earth To add to our storehouse of wisdom and mirth.

Beauty of stars shining up in the sky. Beauty of meteors swift flying by. Beauty of song birds by day and by night, Beauty of Lady Moon's soft mellow light.

Beauty of mountain and beauty of lea, Beauty of rainbow and beauty of sea, Beauty of flower and beauty of tree All is reflected in YOU and in ME.

#### To the West Wind.

Oh Western wind, what a different world, Since you have come to stay! A deluge of sunshine instead of rain, When you chase the clouds away.

You lead merry measures in tree-tops tall, You billow the grass and grain; You blow firmly smooth the roadways all, After the spell o' rain.

You rumple our clothes and roughen our hair,

And bring a warm glow to the cheek, You may take all the liberties you will, When you haven't been round for a week.

Oh West Wind, stay with us all the year, Spring, Summer, and Winter and Fall,—

Yet no, you could not so welcome be,
Did we not have a taste of all.
—Emma Peirce.

#### The Beautiful Oleander of Texas.

Mr. Frank C. Patten, Librarian of the Rosenberg Library of Galveston, Texas, in an interesting personal letter calls attention to the magnificent bloom of the oleander. At his suggestion we have obtained from Poole Brothers of Chicago an interesting photograph of this beautiful plant in full bloom. A naturalist friend, Miss Meta Hillje of Alvin, Texas, writes:

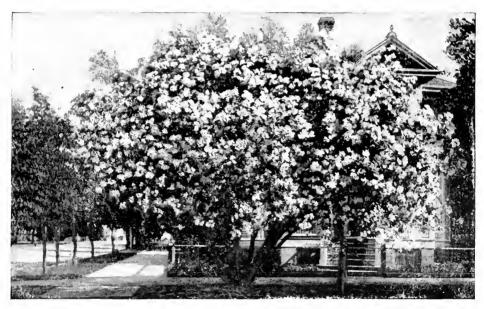
"The oleander is a free blooming evergreen shrub of easy culture, often grown as a pot plant in the north but

#### The Lambs and the Tent.

BY J. A. KEARFUL, ADA, MONTANA.

THE GUIDE TO NATURE is admirable. It is the best publication that I know for getting one's nose off the ground and for making one observant and alert.

For instance: a few years ago we took a half dozen motherless lambs from a sheep ranch and raised them by hand. They never saw an old sheep. At night they were bedded down on an ash pile at the back door. They grew wonderfully. Now, take notice.



THE OLEANDER IN MAGNIFICENT BLOOM.

hardy in the south, where it is a splendid subject for tall hedges, masses or single specimens. In the latter form it often reaches the size of a small tree.

"Although native of southern Europe and the Orient, it grows to perfection in Galveston, Texas, and during the month of May when they are in full bloom the 'Oleander City' is beautiful beyond description."

"Nature," in urging upon the British public greater attention to the economic aspects of bird life, remarks that as a result of the labors of our Department of Agriculture there is in this respect "a higher standard in the United States than in any other part of the world."

In August of that year, I had some visiting friends from the East. To enlarge the houseroom I set up a tent some hundred yards from the kitchen door. That night those lambs abandoned their comfortable bed aground, settled down about the tent, and there stayed at night as long as the tent remained. Was that bred into them from the time of Abraham? Can you explain it?

Much important work is now being done by crossbreeding our long domesticated plants with their wild relatives, and so bringing in the hardiness of the old wild form.



Bird-Lore for June reminds its readers that an increase in our crops means not only an added food-supply for man but also for injurious insects as well. Agriculturists are therefore urged to supply birds with shelter, nesting-places, and water in order to attract them to the vicinity of planted areas. This plan of encouraging birds to live near us has been termed "bird-gardening," and the methods to be employed are presented at length in this issue of Bird-Lore.

A Lot o' Lovin'. By Chauncey Roscoe Piety. Louisville, Kentucky. The Standard Printing Company.

The reviewer, while lecturing before the County Teachers' Institute in Scottsburg, Indiana, met the Reverend Mr. Piety and at his invitation gave a talk before the Christian Endeavor Society of the First Christian Church, and after the meeting took the young people out to see the stars. From this interview has been evolved an acquaintance by correspondence with this poetical pastor, who is also an appreciative nature lover. One poem, "The Child and the Stars," the author says, was inspired by the address to the young people.

The Life of the Grasshopper. By J. Henri Fabre. New York City. Dodd, Mead and Company.

This is the seventh book in the translations being made by Mr. Teixeira from the "Souvenirs Entomologiques" by the great French naturalist, Fabre, who has been called "the novelist of the insects." Fabre tradition of tireless observation, ingenious experiment and eloquent interpretation is continued in this story of the grasshopper. Directly and simply Fabre sought only to record the truths revealed through his quiet research, but in doing so he achieved a unique beauty of expression and a nice interpretation of insect life toward which modern science is turning with ever increasing admiration. Of Fabre's standing as a naturalist it is enough to say that Charles Darwin valued him as an observer of the very first order.

Goldfish Varieties and Tropical Actarium Fishes. By William T. Innes. Philadelphia, Pennsylvania: Innes & Sons.

Blessings on William T. Innes! He is the most enthusiastic one of us all when it concerns aquaria, and he is right in asserting that there is no other means of bringing so complete a bit of nature into our homes as is afforded by an aquarium. Here is an opportunity for the student, the artist, the scientist and for those who simply love pets. In the glass of the aquarium, we have a window from which what we see is limited only by our own capacity for observa-William T. Innes believes in the aquarium, not only for these reasons, but because he possesses the real missionary spirit of helpfulness to others. What he does not know about aquaria, I fear will not be discovered in this century. If you want to see a man who is the very concentrated quintessence of enthusiasm, say, "Aquarium." to Innes. He gets up in the morning long before any other human being, and is off to the ponds to hunt for daphnia and water plants. He dreams about aquaria long after he has gone to bed.

He believes that if a thing is worth doing at all it is worth doing well. You may search his house from attic to cellar, and not find one of those cruel little things, those little glass globes with a forlorn goldfish swimming around in it. No. He makes his fish happy. He knows how to do it and, best of all, he knows how to tell other people how to do it.

There are more foolish things, more really cruel things, done with aquaria than we can fully realize. There are not many aquarial experts in this country, but there are hosts of people who are thoughtlessly cruel or cruelly thoughtless. The five cent stores have popularized the subject. Many a florist dips out a little fish and sells it with a tiny globe for only a few cents, and such people mistakenly suppose that they are naturalists. There is only one best way, and that is the Innes way. He has no monopoly of information on the subject; there are other good workers and other good books, but I do not know of any better worker than Innes, nor any better book than his. If you have an aquarium, get this book by Innes and do what he tells you to

When a bit of sunshine hit ye After passing of a cloud: When a fit of laughter gits ye An' ye'r spine is feelin' proud, Don't forget to up and fling it At the soul that's feelin' blue. For the minit that you sling it It's a boomerang to you.

—Capt. Jack Crawford.

## Resolutions on the Death of Mrs. Pauline Agassiz Shaw.

At the Annual Meeting of Trustees of The Agassiz Association held at ArcAdiA, on the anniversary of Louis Agassiz's Birthday, May 28, 1917, the following resolutions were adopted upon the report of the death of Louis Agassiz's daughter, Mrs. Pauline Agassiz Shaw, at her home in Jamaica Plain, Massachusetts, February 24th, 1917.

Whereas, we, the Trustees of The Agassiz Association, have learned with deep sorrow of the death of Pauline Agassiz Shaw, a daughter of Louis Agassiz, at her home in Jamaica Plain, Massachusetts, be it

Resolved, that we publicly acknowledge our sincere sorrow in her death, and our realization of the loss of one of our most loval friends in the great Cause of The Agassiz Association. For many years Mrs Shaw has given kindly counsel and substantial aid as a Life Member of this Association. Her counsels have always been appreciated by the officers, and her kind words of good will have endeared her to all, especially to the President of this Association. She has encouraged the work by words of good cheer and by many kind suggestions of methods by which the work might be made better.

Resolved that in addition to this public expression of sorrow, we extend to her children, sister, nephews and other relatives and members of the family, our sincere sympathy in this great bereavement.

Adopted by the Board of Trustees, EDWARD F. BIGELOW, President, HOMER S. CUMMINGS, Secretary.

### Report from Louisville, Kentucky.

The year has been a very interesting and educational one for the Louisville Girls' High School Chapter of The Agassiz Association. The monthly indoor meetings have been well attended and each one was made attractive by a nature programme. One of our best meetings was made so by Balopticon views of American birds. While the slides were being shown, our faculty adviser gave an instructive talk on the birds, emphasizing the point of bird description. Selecting the robin as our standard bird we described each succeeding bird by considering its size, color, shape of tail and bill and feet, in comparison with the robin. We also learned much from Audubon's Book of American Birds.

On our outdoor trips we specialized on trees. Early in the fall before the trees had lost their foliage we took a trip to study them and learn how to recognize them by their leaves and bark. On an early spring excursion we studied the buds of the sprouting trees; later in the spring we started on a tree recognition trip. While out we often ran across things not pertaining to trees and did not overlook them. We saw a meadow lark's nest, one day, which was quite a treat, and we studied and learned to know many wild flowers.

We are looking forward to another season to study nature's wonders.

VIRGINIA STEINBOCK, Corresponding Secretary.

You can read a poem and find only words. You can hear a symphony and recognize only sounds. You can go into a garden and see nothing but trees and plants and flowers.—Abram Linwood Urban in "My Garden of Dreams."

### A Migration of Newts.

One of our esteemed Members in Plainfield Iowa, writes as follows of an incident that occurred in North Dakota.

"Will you please state in your magazine what good work lizards do, the common brownish green kind? On the morning after a hard rain at night, there were hosts of lizards hurrying across the fields, vards and roads, all traveling southeast. Why? We had never previously had any to any noticeable extent in this part of the state and as I did not want them in the cellar, I killed two and got seven more in a pail, but there were so many I quit for I thought they must serve some good purpose and doubtless they were as glad to live as I am. They all disappeared in a day or two. Something of the same sort happened here in Iowa last summer. One evening at nine o'clock a family on their front porch saw a regular bunch of lizards going west. I shall be glad if you will tell me the use or habits of these reptiles. I feel sure that the lizard must have some place in the general scheme of things."

Never kill any animal unless you do so in self-protection or for food. Lizards are harmless and are not edible. But in this instance you are doubly in error. The little animals are not lizards. Perhaps the graceful, dainty little body may by its form somewhat suggest a lizard but the harmless little fellows are newts. Raymond L. Ditmars says:

"They migrate after rains to areas that contain more dampness, as these naked-skinned creatures (like toads or frogs) depend upon a water soaked soil. They travel after rains owing to the ground being then in proper condition for their progress. They feed upon insects."

You should have an aquarium in which you can readily keep a few newts. They are the delight of every one who likes aquatic animals. They will soon learn to take food from your fingers.

From a British book, "Life in Ponds and Streams" (Furneaux), the following is quoted:

"The general form of a newt is very similar to that of a lizard, and this resemblance has led to the common application of the name 'water lizards' to the former. But to avoid confusion, it may be well to note the more obvious distinction between newts and lizards. Newts are amphibious animals, and even truly aquatic at certain periods of their existence; while lizards inhabit heaths, moors, and banks. Newts have a soft moist skin, resembling that of frogs; but lizards are covered with a dry scaly skin, much like that of a Newts have flattened tails adapted for swimming, while the tails of lizards are round and tapering. Also, newts in their earlier days, pass through a series of stages similar to those of the frog; but young lizards. on their first appearance in life, are formed just like their parents. And, further, the close relationship existing between the newts and other amphibians is clearly exhibited by the shape of the head and the wide gape; by their prominent eyeballs, which are retractile, and readily observed on the roof of the mouth, and by the arrangement of the eyelids; also by their method of breathing, which corresponds exactly with that force-pump action described when treating of frogs.

"They are easily caught. The only implements required are a small gauze hand-net and a large metal box, such as an ordinary bait-can, in which to convey the specimens home.

\*

As you walk round a weedy pond vou will observe here and there a newt gracefully swimming with an undulatory movement of its tail toward the centre. Its fear of the monster on the bank is evidently not very great, for its flight is not at all hurried, neither does it trouble to swim any great distance from you; and a quick sweep of the net among the weeds will generally secure the prize, and often one or two others that happened to be among the foliage in the path of the net. Sometime, in fact often, the newts in a pond are so numerous that they may be secured, five or six at a stroke, without attempting to look for them, but by simply sweeping the net haphazard among the weeds.

The schoolboy's method of catching newts is usually not so productive, though it may be more exciting. An extempore fishing-rod is made of a cut stick and a piece of string. An earthworm is tied to the lower end of the string and let down into the water, either just in front of a newt that is seen or in a spot where some of the creatures are supposed to be hidden. A gentle tugging is presently felt, and is sometimes rendered visible by the bobbing of a piece of cork used as a temporary float. Now is the time for the exercise of a little patience, and judgment. Give the hungry amphibian sufficient time to swallow the worm, or, if the latter be a large one, time to get a portion well lodged in its stomach; and then a sharp haul lands the creature on the bank before it has had time to free itself from the treacherous luxury."

SOME FUNNY FEEDING ANTICS.

"But if the worm happens to be a larger one, say about three or four inches long, the matter is not quite so simple, and may end in disappointment to the newt as well as death to the poor worm. Newts do not know the most effectual way of seizing a worm, and frequently make the mistake of snapping at the middle and commencing to swallow it at that point. In this case the newt has to labor against the double thickness which has to pass through its mouth and gullet. often proves too much; and after many severe struggles to dispose of its prev. it is obliged to relieve itself by disgorging it entirely.

If, however, it is more fortunate in seizing the worm at one end, there is generally a trouble of another kind awaiting it, for one of its fellows, attracted by the furious struggles of the poor worm, makes a dash at the other end! Then follows an exciting scene. Both newts continue to swallow the worm, till at last their jaws meet, each one having disposed of about one But still they go on, each one half. taking gulp after gulp, with a vantage sometimes on one side and sometimes on the other. After a time, however, the weaker newt shows signs of exhaustion, and, relaxing its hold on the worm, allows each gulp of its fellow to deprive it of a portion of the meal that had already been swallowed; and then, finding no hope for the retention of the meal, suddenly ejects the remainder and swims away. But the fortune of the sole possessor of the worm is no brighter, for its stomach is distended to its greatest capacity at the time that the whole was left to its share; and after many unsuccessful attempts to dispose of the free end, it is obliged to eject even that which had been so satisfactorily disposed of."

#### Sequestered.

BY CHARLES NEVERS HOLMES, NEWTON, MASS.

There is a sylvan nook
Where purls a tink brook,
Where chansonnette of bird
All summer long is heard
And zephyr's lightest breeze
Is whispered by the trees.

That nook is in a glade Of mingled sun and shade, A glade within a glen Afar from haunts of men, A glen of boughs and brakes Where echo seldom wakes.

The pines rise straight and tall Around it like a wall, Pine needles strew its floor, Wide open stands its door, Its roof is broad and high—The tree-tops and the sky!

There often comes the bee, Well laden from the lea, Oft flits the butterfly On gorgeous pinions by, And squirrel chatters fast Or nimbly scrambles past.

Unmarred by axe or flame That spot remains the same, A sunny, sylvan nook Where purls a tiny brook, Where chansonnette of bird All summer long is heard.

### Spring Messengers.

BY EDNA L. BOGUE, MONTCLAIR, NEW JERSEY. Blow, flowery bugles, blow, Aerials bright of early spring, Ring thy notes across the meadow, Let every song bird on the wing, Unite his lay, with thine, and sing.

For pulsing life's in the air,
Tingles with the breath of spring!
Blow, flowery bugles, blow,
On, and on, across the hills,
Let little brooklets sing with laughter,—
Romping, rippling, little rills,
Blow, flowery bugles, blow,
Ye aerial daffodils!

### **SOUND BEACH HAS BIG CELEBRATION**

Nine Hundred Participate in a Memorial Day Parade.

### SPEECHES AT ARCADIA AND FLAG-RAISING

Great Demonstration of Loyalty to the Country.

[THE STAMFORD ADVOCATE, MAY 31, 1917]

Yesterday was a great day in Sound Beach. A parade, in which 700 or over participated, was the largest ever held there. The number who saw it was the largest ever gathered together for such

upon the grounds of the Sound Beach Golf and Country Club. Led by a platoon of Greenwich borough police under Sergeant Flannagan, the procession marched over Potomac Avenue to Shore Avenue, to Sound Beach Avenue, to ArcAdiA road. At ArcAdiA, appropriate exercises were held. There were a flag-raising and an address by Judge C. H. Martin of Orange, a member of the State Legislature. In the parade, Home Guard, Police Reserve, State militia, boy scouts, ladies, firstaid-corps, G. A. R. Veterans, Sons of Veteraus, firemen, police and musicians took part.

The platoon of Greenwich police led the march up Potomac Avenue, Kearnev's band from Stamford following. Next were the militia and Home Guard.



THE STEEL FLAG POLE, ERECTED BY MR. CHARLES H. KNAPP OF SOUND BEACH, WAS RAISED TO PERPENDICULAR POSITION BY A STEAM ROAD ROLLER PULLING ON A CABLE OVER A SERIES OF PULLEYS.

an occasion, in Sound Beach. streets were alive with activity. Automobiles occupied places all along the line of march People crowded along Sound Beach Avenue to get a glimpse at the procession. Visiting organizations from Stamford, Riverside, Greenwich and East Port Chester joined in the celebration given under the auspices of the Sound Beach Association, whose able president, Dr. A. E. Austin, labored indefatigably. Fred Binney, as secretary, did a large share of the work.

At II a. m. the divisions assembled

the Seventh Company of Stamford and Twelfth Company of Greenwich, C. A. C., were in command of Capt. Foord and Capt. Eugene Nestor. The Riverside Reserves, a fine-appearing body of men, marched well. It was their first appearance on parade. They were led by Capt. Reginald Reynolds, and numbered about 70 men, among them prominent citizens of Riverside. They were armed with night sticks. The Greenwich special police wore the drab uniform of the Home Defense Guard and carried police sticks. They are a welldrilled body of men, numbering about 75, and were led by H. H. Adams, Jr. Like the Riverside Reserves it was their first appearance in the parade. The Sound Beach Home Guard numbered about 70, and were led by Lieut. C. D. Potter. They carried their new rifles and marched like soldiers. It was their first appearance on parade in uniform.

The East Port Chester Boy Scouts, 50 in number, were led by Capt. Francis J. McGuiness. The Boy Scouts of Riverside, with Scoutmaster Raymond Bowen, and the Sound Beach Boy Scouts in charge of Scoutmaster Clarence Crandall, carried troop flags. Messrs. Nedley and Moore marched as drummer boys with an East Port Chester division. A color detail, F. S. Knox, George Gisborne and George MacDonald, had the American flag in the center and the flags of France and Great Britain upon either side.

Members of Lombard Camp, Sons of Veterans, under Commander William Peck, numbered about 40. Members of the G. A. R. rode in five automobiles.

An interesting feature of the parade was the appearance of the Red Cross local chapter and the Riverside First Aid Corps. The ladies wore the regulation Red Cross dress, and were led by Mrs. J. A. Graham, Mrs. A. E. Austin, Mrs. Edwin Binney and Mrs. G. A. Horsey. The two corps numbered 100 or over. The East Port Chester First Aid Corps was under the leadership of Miss Neidedmeier, and wore the girl scout dress.

Ten Sound Beach girls carried a large American flag. They were Helen Downey, Elizabeth Sanger, Elizabeth Brundage, Ethel Offen, Mabel Navarette, Iris Navarette, Charlotte Mansell, Grace McGowan, Hazel Potter and

Jessie Palmer.

Members of the Sound Beach Fire Department and Sound Beach Fire and Police Patrol had the rear of the procession. The leaders were Chief Albert Palmer, Assistant Chief Frank Gisborne, First Lieut. E. Benjamin Lockwood., Capt. Stewart Potter, and Second Lieut. Bert Lockwood. The firetruck followed the firemen. The new machine gun and motor truck of the Greenwich special police were also in the parade.

Music was played by Kearney's band, the Greenwich Band and the Maple Fife and Drum Corps of Stamford. It was the first appearance on parade of the Greenwich Band, whose director is Norman Hunt. Mr. Carey led the band yesterday.

The procession was reviewed at the corner of Lockwood Avenue and Sound Beach Avenue by Greenwich officials. First Selectman Newton S. Johnson, Road Commissioner N. A. Knapp, Registrar Cameron, Dr. Austin of The Sound Beach Association, and James T. Dougherty, president of the East Port Chester Civic League, were in the reviewing-stand. When the parade reached ARCADIA, the divisions marched into a large lot and formed in rectangular formation about the speaker's platform. Capt. Samuel K. Thomas, marshal of the parade, gave orders at the assembly here.

#### Ceremonies at ArcAdiA.

Rev. L. W. Barney offered prayer. Kearney's Band played "America," and all joined in singing. Judge C. H. Martin, the speaker of the day, was introduced by Dr. Austin, who spoke briefly, thanking the ladies and the visiting organizations for their able assistance. He delivered a message "straight from the War Department," that those present should not forget the Liberty bonds. Hon. Charles J. Martin of Orange is one of the ablest speakers in the Legislature. He advocated the liberal Sunday law, and it was principally through his efforts that it came near success. His address vesterday was full of patriotic fervor.

"This great nation of ours," said he, "seems to be now a cordon of loving hearts, with hands outstretched to aid those in distress, and bound up in the grand idea of one common country."

After describing the process of climb-

ing in Switzerland, he said:

"And so we find a parallel case in the ties of the constitution of our country, and the Stars and Stripes, which bind us together as a nation. We know some of the parts may be weak, but as a nation they are protected and held in a common cause. It was the union of the thirteen colonies which originally made the American nation. It was the union of these colonies, under one flag, by act of Congress in 1777, which made

us a nation under one flag, and a great

flag, before the entire world.

"And why should this flag stir your hearts and make your spirit burn within you? Because immortal honor hangs alike in every square inch of its fabric."

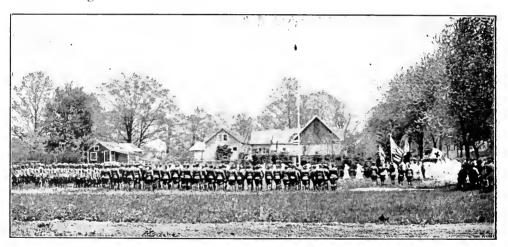
He traced the origin of the flag, and recounted occasions where it has stood

for the right.

"In 1916 it went into the country of Mexico for the protection of the American citizen, and in 1917 we again find it entering into the great world war in defensive of democracy. It has been stormed at with shot and shell, and torn to tatters in a hundred battles, but it has always waved for freedom.

"We are at present in a world-war death-grapple, and we are like the Christian knight who went forth armed

unity of individuals and of State. We must appreciate that to accomplish any result of merit entails sacrifice. And so it is for you and for men to take up our part in this great world-war, and, whether we be at the front or at home, to see, as true patriots, that we do our part for the success of our country, and for the success of the cause, knowing and realizing that those who blazed the way in earlier days suffered and sacrificed much that we might live as we do today; and so we, at this time. must suffer and sacrifice much that we might live as we do today; and so we, at this time must suffer and sacrifice for the benefit of those who, in the future, will live under that great and glorious flag, the Red, White and Blue."



THE CEREMONIES AT ARCADIA.

cap-a-pie to succor the oppressed and to bind up the wounds of the stricken. We have no purpose of territorial aggrandizement; we have no aim for empty glory; we have no cruel pride in the supreme knowledge of strength, but we stand for the right in this world war, as God gives us to know the right."

He mentioned the lessons which the flag suggested—white for purity, pure and incorruptible citizenship, honesty and charity, red for love, and a symbol of blood which every true patriot should be willing to shed for his country; the stars are symbols of light and heavenly protection.

"And now my friends, as we are assembled here today," said Judge Martin, "we must reflect upon the good that has been accomplished by the

Raising the Flag.

Following Judge Martin's address, Capt. Thomas summoned a color detail comprising Fred McDonald, J. A. Hall and George Cornish of the Home Guard. The American flag resently presented to ArcAdia by Senator McLean was then slowly raised on an 80-foot steel flag-pole. "The Star Spangled Banner" was played. As the flag, which had been carefully furled, reached the masthead, a salute was fired, and the flag gracefully unfurled to the breeze, while the crowd applauded. Rev. Dr. Barney pronounced benediction

A luncheon was then served to about 500 by a committee of ladies, of which Mrs. Edwin Binney, Mrs. G. Horsey and Mrs. A. E. Austin were at the head

Before the parade, veterans with school children visited the graves in Sound Beach and decorated them with flags and flowers.

#### Summer Showers.

BY CAROLINE CLARK HINTON, ATLANTA, GA. Summer showers that fall like Mist of early morning dew, Bathing all in sky-veiled tears; Recreating old for new.

Summer thoughts full-blown and scarred, Spring and youth so far away. Tears fall softly with regrets; Tomorrow has its day!

#### The Painted Fields.

We motored, on a Summer day,
The smiling country through;
There were woods, and streams, and meadows fair,
And hills, with distant view.

An artist, just before, had passed.
Whose influence long would lurk;
For canvasses she chose the fields,
We saw her finished work.

Her paletteful of brilliant tiuts Had been transferred to earth; Arresting in their vividness, Of none was there a dearth.

The primal colors all were seen,
And we could well surmise,
A rainbow had enwrapped the earth,
To dazzle mortal eyes.

There were ruby gleams of sunset fires, And the purple of the hills, And go'd was used so lavishly, It ran in little rills.

While some slopes glowed like burning coals,
S ill others swam in light,
And some were like the evening sky,

All violet and white.

And more were as the ripened grain, When ready for the scythe; While others were with gay "red-top" And gypsy clover blithe.

For shadows there were grasses dark, And in the shaded light, The day-stars of the daisies gleamed Like the silver ones of night.

October we'd been wont to call
The month of brilliant dyes,
And here were all her hues, and more,
Before our wondering eyes.

Oh June, thou art a wizard month,
We thought we knew thee well,
And here thou holdest us entranced
Beneath a bran-new spell!
—Emma Peirce.

The Plans for Little Japan from Japan.

The plans for Little Japan, especially those for the gate-like entrance to the Rest Cottage, were sent to us by Y. Hirase, President of The Hirase Conchological Museum, Karasumaru,



SHO NIPPON OR LITTLE JAPAN.

Kyoto, Japan. Mr. Hirase has for many years been an active member of The Agassiz Association. He writes as follows:

"It is very kind of you to carry out such a plan for the sake of our country. We highly appreciate your warm sympathy with our country and its people.

"I have seen the picture of the gate you designed yourself after a Japanese shrine entrance, which we call 'torii' in our tongue. The 'torii' is a sort of gate at the entrance to a 'Shinto' shrine in Japan. There are various kinds. Some have small tablets of various forms in the middle above. Some are very plain and the others very showy and charming.

"Enclosed please find a sheet of paper on which 'Little Japan' is written in Japanese characters. My friend, Mr. Tokuta Yamada, has written it. He writes the best hand in Kyoto.

"The Japanese for 'Little Japan' is pronounced 'Sho Nihon' or 'Sho Nip-

pon.' "

The accompanying is the Japanese for "Little Japan" written especially for us by Mr. Yamada.

### Accident to Professor Brown.

Professor Henry W. Brown of Colby College, founder of the Wantonoit Club, a nature organization which has selected THE GUIDE TO NATURE as its official organ, has recently been seriously injured in an automobile accident in the White Mountains. Professor Brown had been giving inspirational addresses before a New Hampshire Y. M. C. A. convention at North Conway and was stricken down by a recklessly driven machine, suffering two bone breaks and other injuries. He is at the Sisters' Hospital, Waterville, Maine, and hopes by July to be able to go on with his Wantonoit activities at Beckett and elsewhere.

#### Supplication.

BY RICHARD WALTHAM HANES, STAMFORD, CONN.
Dear Lord, please let me grow to be,
Each year, more like unto a tree.
For while it ever heavenward grows,
The wind of fate through its branches
blows:

Still each season it strives to be More beautiful, dear Lord, for Thee.

When winds of age have passed it by, It stands against the sunset sky—
A warrior in coat of gray,
Watching the night embrace the day.
So dear Lord, help me strive to be
A stalwart sentinel for Thee.

#### Mother Nature's Smiles.

The flowers have come into their own;
Evolved from earth by Springtime wiles;
How cheery, after Winter's flown!—
For flowers are Mother Nature's Smiles.
—Emma Peirce.

From Over Eighty Years Young. West Gloucester, Mass.

To the Editor:

On this bright, March morning, I have been reading the latest issue of THE GUIDE TO NATURE, in which I found an unusual number of interesting articles and two fine poems, "Time's Symphony" and "The Sequence," both of which appealed to the best and the purest within my soul. Annie F. Meyer's letter claimed special attention. Only two weeks in the whole year to be out of the city, and yet yearning day by day for a sight of the woods, for a tramp over the hills, and eager for a glimpse of a bluebird, a hermit thrush and other birds and longing to hear their melodious music. \* \* \*

I wish that every human being that seeks with ardent desire and finds a revelation of the Divine Creator in each leaf and bud and flower and bird could have the glorious month of June in which to watch and to welcome the birds and enjoy the outcropping of leaf, bud and blossom on the trees of the forest and beside the roadways. And this true lover of nature ought to have as her "inalienable right," the month of September.

"Whose golden days, Serenely still, intensely bright, Fade on the umbered hills away, And melt into the coming night."

Nature is ever an open book to minds attuned aright. No blots or misstate-

ments mar its pages.

By the last of May we are sure to find not only that Mother Nature has spread her green carpet, but has also decorated it with lady's slippers, anemone, arbutus (bird's-foot violet and other early blossoms.

Emerson says, "There is a guidance for each one of us and by lowly listening we shall hear and receive the right messages."

After more than eighty years of life, I have found that the right place for listening is in some sequestered nook of nature's vast temple where are hid treasures of wisdom and knowledge and where Mother Nature, the monitor, is always ready to incline her own listening ear and to impart wonderful know-

ledge. With advancing years I still hear

"The harp at Nature's advent strung That has never ceased to play; And the song the stars of morning sung Has never died away.

So Nature keeps the reverent frame With which her years began,

And all her signs and voices shame The prayerless heart of man."

(Mrs.) Maria Herrick Bray.

### Hurrah for Governor Holcomb!

Stamford, Connecticut.

To the Editor:

I am calling your attention to the latest sample of our Governor Holup-to-dateness, despite his seventy years. Finding myself unable to obtain a team to plow, as I had determined to do my bit and plant two acres of corn on a neighbor's farm, I wrote the Governor suggesting that teams be released from road repairing or construction whenever the horses were needed for plowing.

Presto! In about three days the matter had been adjusted with the Highway Commissioner and my suggestion, framed in a note to all selectmen in the state and overseers on state roads, reached me by way of the Committee on Food Supply. In a few hours a man whose team had been on road work was turning the sod for my corn crop. Hurrah for Holcomb and old Connecticut, where the corn yield per acre has surpassed that of any other state!

#### CHARLES H. CRANDALL.

An interesting scientific monograph on a natural history subject is Dr. Glover M. Allen's "The Whalebone Whales of New England," brought out by the Boston Society of Natural History. In addition to the usual careful description, involving six species, the author includes a great deal of interesting fact on the history of local whale fisheries; together with practical directions for identifying any stranded specimen that can be examined closely, and also for any creature seen in its native element, where little can be made out except the general size and shape, the back fin, the form of the spout and the characteristic action.

### THE AGASSIZ ASSOCIATION. YEARLY CASH REPORT.

(Accepted by the Board of Trustees at the · Annual Meeting on May 28, 1917.)

#### Summary-Cash Received.

| April 1, 1916, to March 31, 1917, inclusive. |
|----------------------------------------------|
| From The Guide to Nature\$3,948.22           |
| From Contributions to Payment of             |
| Debt on the Land 1,296.00                    |
| From Contributions to Little Japan 323.00    |
| From Members' Dues, Contributions,           |
| etc 1,571.57                                 |

Total .....\$7,138.79 Note: For the payment of the debt on the land of \$1,250, not only the total was contributed but enough additional to cover the accrued interest of \$8.83 and the expenses of the printing and correspondence in obtaining this aid and to give a small surplus to the general expenses of the Association,

### Summary, Cash Paid

| builliary—Casir Faid.                        |
|----------------------------------------------|
| April 1, 1916, to March 31, 1917, inclusive. |
| For The Guide to Nature\$4,201.11            |
| For Debt on the Land 1,258.83                |
| For Little Japan 172.96                      |
| For General Expenses and Improve-            |
| ments                                        |

Total .....\$7,138.79

#### Auditors' Statements.

The above is a correct summary of cash received and paid from April 1, 1916, to March 31, 1917, inclusive.

(Signed) EDWARD F BIGELOW. Sound Beach, Connecticut.

Subscribed and sworn to before me this 12th day of May, 1917.

(Signed) HARRY C. FROST, Notary Public.

\* \* \* \* \*

Stamford, Connecticut. This is to certify that I have examined the details of which the foregoing is a summary and find all to be correct.

(Signed) CLINTON R. FISHER, Auditor for the Public.

Subscribed and sworn to before me this 28th day of May, 1917.

ay, 1917. (Signed) Clarence E. Thompson, Notary Public.

I have examined the books of record and account of the AA for the year ending March 31, 1917, and find that they have been properly kept, and in my opinion all the expenditures have been made to the best interest of the Association. The payment of the remaining indebtedness on the land is especially gratify-

(Signed) HIRAM E. DEATS, Member of Board of Trustees. May 28, 1917.

| Contributions for Little Japar              | 1.    |
|---------------------------------------------|-------|
| Mrs. C. O. Miller, Stamford \$              | 10,00 |
| Honorable Zenas Crane, Dal-                 |       |
| ton, Mass. (Increase—total                  |       |
| \$125.00)                                   | 75.00 |
| Mr. Samuel P. Avery, Hart-                  |       |
| ford, Conn                                  | 50.00 |
| Mr. Arthur A. Carey, Wal-                   |       |
| tham, Mass. (Increase—                      |       |
| total \$50.00) J. H. Kellogg, M. D., Battle | 25.00 |
| J. H. Kellogg, M. D., Battle                |       |
| Creek, Michigan                             | 10.00 |
| J. R. Evans & Company, Stam-                |       |
| ford, Conn                                  | 5.00  |
| Mr J. L. Cochrane, Sound                    |       |
| Beach                                       | 2.00  |
| Mr. Frank W. Howard, Sound                  |       |
| Beach                                       | 2.00  |
| 0-                                          |       |
|                                             | 70.00 |
| Previously acknowledged 5                   | 50.00 |
| Total \$7                                   | 29.50 |
| For Growth and Efficiency.                  |       |
|                                             | 5.00  |
| Mr. G. E. Dodge, Sound Beach                | 5.00  |
|                                             | 30.00 |
| Mr Fitch A. Hoyt, Stamford                  | 2.00  |
| Dr S. S. Goldwater, New York                |       |
|                                             | 5.00  |
| City Mr. L. C. Root, Stamford               | 5.00  |
| Major Samuel K. Thomas,                     | *     |
| Sound Beach                                 | 5.00  |
|                                             | 0     |

Miscellaneous Contributions.

Mr. Clyde T. Ford, Sound Beach: Shell from Avalon.

Mr. E. Hartwright, Sound Beach: Rhinoceros beetle (Dynastes tityrus).

Rhinoceros beetle (Dynastes tityrus).
Mr. Benjamin Wilson, Stamford:
Burl—a wood frog and several small
salamanders.

Mr. Arthur Hanson (Member of Battery F), Stamford: Cactus from El Paso.

Mrs. James F Walsh, Greenwich: Luna Moth.

Mrs. Charles W. Ford, Sound Beach: Interesting specimen of fasciated asparagus.

Mrs. Louise Marion, Shippan, Stam-

ford: Small alligator.

Mrs. Cornelia M. D. Peck, Sound Beach: Globe of the heavens, in standard.

Mr. Leon Scofield (Member of Battery F), Stamford: Specimens of shrapnel, Mexican opals, Mexican money and postals and specimen pertaining to Mexican bullfights.

Mrs. Grace Lee Smidt, Sound Beach:

Double hen's egg.

The Misses Margaret and Esther Ferris, Sound Beach: Mounted specimen of parula warbler and of yellow warbler.

Honorable George P. McLean, United States Senate, Washington, D. C.:

Sixteen foot wool bunting flag.

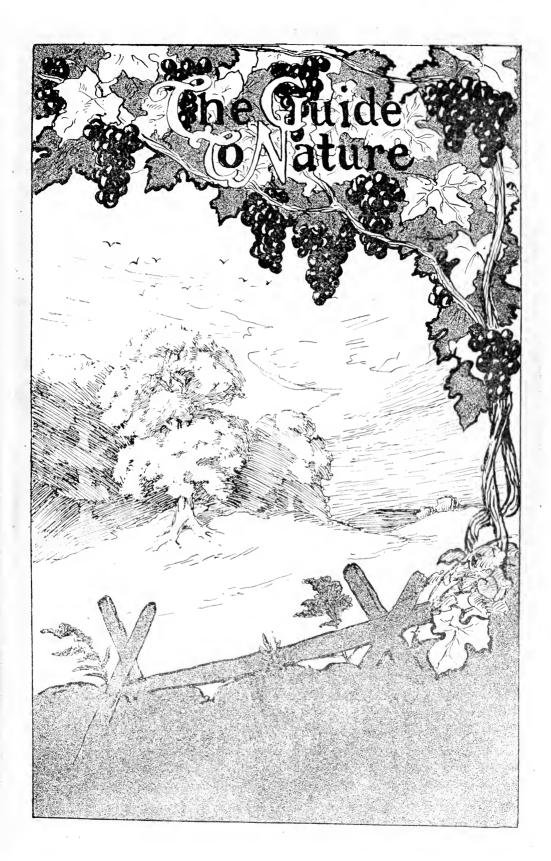
The Sound Beach Association, Sound Beach: An eighty foot steel flag pole dedicated with elaborate ceremonies May 30th.

The Agassiz Association is doing a great work and should be encouraged to continue it and enlarge it as fast as financial resources will permit. I only regret that the considerable expense incident to putting oneself through the University has prevented me from contributing liberally to your funds. Perhaps I may be able to do so in the future.

The Guide to Nature has always been a source of real delight to me. My little sister also derives a great deal of pleasure from reading it, and eagerly watches the mail each month, when the new number is due.—William J. Blackburn, Jr., Columbus, Ohio.

# Please remember this educational uplifting work in making your will. Form of Bequest to the Association

I hereby give and bequeath to The Agassiz Association, an incorporated association, having its principal executive office at ArcAdiA, in Sound Beach, in the town of Greenwich, Connecticut, the sum of \_\_\_\_\_\_dollars.



DO NOT LEAVE FURS, WOOL-

ENS OR VALUABLE RUGS FOR

MOTHS TO RUIN. PLACE THEM

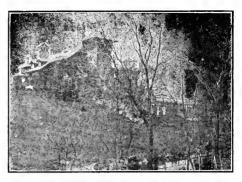
IN OUR DRY AIR COLD STOR-

AGE VAULT. THE CHARGES

ARE REASONABLE.

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CONN. GREENWICH : :



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Greenwich, Conn Tel. 456 Opp. Depot

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(From an Editorial in "The Popular Science Monthly.")

"The most desirable institutions for scientific work would probably be comparatively small laboratories conducted by the scien-It would be tific men who work in them. well if such institutions were endowed by the rich, still better if they were supported by a state or community."

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STAMFORD, CONN.

#### FASHIONS OF TO-DAY

for All Seams, Diagrams for MANTON shows MAY Allowing Design E Basting Making. Pattern f Gives the Cutti

Manton Pattern Co., Greeley Sq., Agents Everywhere

9492 Girl's Pajamas, 6 to 14 years. Price 15 cents.

One-piece pajamas have come to be favorite sleeping arments. These are thoroughly comfortable and satisfactory to wear while also they are new and fashionable.
They are so simple that they require no special skill or ability for the making and the older girls will be glad of that fact for they can run them up in a short space of time. Crepe de chine and handkerchief lawn are favorite materials, fine batiste and nainsook always are charming and just now underwear is being made of fine cotton voile. The body portion and trousers are cut together, as indicated in the back view, and you can leave the trousers open or gather into bands and finish them with frills. Here, stitched edges make the finish but, if you like a daintier effect, you could scallop the collar, the sleeves and the upper edges of the pockets—perhaps the best also belt also.

For the 10-year size will be needed 5 3-8 yards of material 27 inches wide, 5 yards 36.

The pattern No. 9492 is cut in sizes from 6 to 14 years. It will be mailed to any address by the Fashion Department of this magazine on receipt of fifteen cents.

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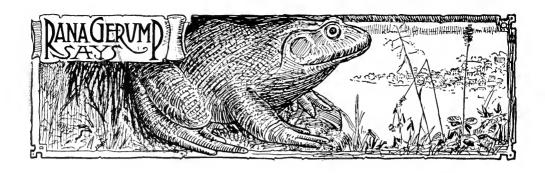
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David Waterbury & Son WOOD COAL Crushed Stone for Walks and Drives

YARDS: CANAL DOCK, STAMFORD, CONN.



### A Local Department.

Pure Water from Nature's Well.

Far away from the maddening crowds of the city, far from its dust and smoke, to a field of daisies, by the tall deciduous trees in close association with beautiful evergreens, is a bubbling spring of superlatively pure water. The Indians knew it and came from afar to drink of it and had many names to describe the excellence of that water. Then came the early white settlers and spoke to their grandchildren and great-grandchildren of the beauties of their wells, but it was usually admitted that it was not fair thus to compare the Indians' famous spring. Uncle Jeremiah was once

known to remark, "I bet not one of us has a well that quite comes up to that old Indian spring. It is just the clearest and purest of any water on earth." Uncle Dan admitted that he stopped there on his way home from town to fill his jug, for it was better than any that he could get in town or on his farm. Uncle Josiah said, "Tell that boy of mine to hitch up the old nag twice a day, in the morning and in the afternoon, and go down and fill all the jugs with that water known all over Fairfield County."

Then came the modern business man and saw that with the combined communities of Stamford, Greenwich and



THE HOME OF PURE WATER.

## Burdett-McGillvray Company

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### STAMFORD'S PROGRESSIVE DRY GOODS STORE

Pictorial Review Patterns.

Our Business is Increasing Every Day
We Show the New Goods First. Popular Prices.

Dependable Goods.

the neighboring towns here was a human need supplied, and with liberal checks on his bank he did his part by establishing a well fitted bottling works for the pure water.

A name, a name, who will give it a name that will make it famous over all the world, especially in the old state of Connecticut? "Varuna" was the Indian's word for laughing or sparkling. So came the name Varuna and as Varuna the water is known to this day. Clear, sparkling, bottled water, pure water bottled in pure air.

With spices and extracts, the best that man can procure, all sorts of appetizing drinks are made. A name, a name for our best product of this kind. "Polo Club" was suggested, so Polo Club and Varuna are the distinctive words that suggest delicious flavors added to the clear, undiluted Varuna, or mingled with such delightful extracts as ginger, sarsaparilla, lemon soda, birch beer, root beer and others to delight the palate and quench the thirst on a warm day.

Long may Varuna flow and supply the households of Stamford, Greenwich and vicinity.

### Far the Better Half.

Smith—"How's everything at your house?"

Brown—"Oh, she's all right!"—Life.



A VIEW OF VARUNA DELIGHTFUL DRINKS.

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We have foreseen the conditions and planned accordingly. We are therefore in a position to ask you to consider early selection at this store as an advantage not overlooked. CARPETS—RUGS—LINOLEUM—DRAPERIES—AND—HOUSEHOLD—LINES WILL BE FOUND OF SPECIAL INTEREST.

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### SOUND BEACH

It is a Sound Beach, thoroughly sound in every particular needed to make an ideal community. Its soundness is generally recognized, not only because it is located on the beautiful Long Island Sound with a wide expanse of attractive beach, but it is sound in its community spirit; sound in its high class hotels; sound in one of the best boarding houses to be found anywhere along the coast; sound in its efficient and spiritual churches; sound in the good scholarship and the pedagogy of its schools; sound in the possession of one of the best fire companies in the United States for a community of its size or even for one much larger; sound in its various supply houses, stores, new post office building; sound in its equipment for sending sounds to every resident in a new and thoroughly equipped telephone exchange opened in May, 1917.

Sound Beach is sound in the soundness that accompanies ideal golf links, a clubhouse, automobile facilities, spacious grounds, picturesque scenery, enticing ravines, ves, even an artistic ravine in a golf course. Who ever heard of such a thing? But here it is, not only one of the natural obstacles but one of the natural invitations. Here the business man of New York City finds the quiet and the beauty in sharp contrast to the turmoil of Broadway and Wall Street. No longer the clang of cars and other discordant noises, but the hills, the lakes and the fields, the song of the wood thrush among the trees, and the call of good cheer from his jovial comrades.

It would be difficult to find elsewhere in the state of Connecticut, or perhaps in any other rural community, so much of wild and primitive country, so many picturesque roads and such scenery as, for example, is exemplified in its unique Laddin's Rock Farm. Where in all the world can one find so magnificent an estate so unselfishly and cordially—yes, beautifully—devoted to the services of the public as this property of Mr. William L. Marks? A stranger would find it difficult to realize it to be a private estate; it would tax his

credulity if asked to believe that the place is—not under community ownership.

Sound in that unique institution, Arcadia, which is willing not only to take everybody to the beach and to tell them of the interests available there, but to ground them and help them in their knowledge of every other phase of nature.

The world may well be challenged to show an institution equivalent to that of ArcAdiA in its wild and picturesque scenery, extending to the finest concrete road in the region, and to the railroad station and trolley line. Here is a beautiful grove well equipped in its Little Iapan for use of church or school. Here are trees eleven feet in circumference. Here are more than five hundred white birches growing as we expect to find them growing far from thickly settled centers. Here are huckleberry bushes that are really high, for they tower upward for twelve feet, densely laden with their bloom, and a few weeks later with the lucious ber-Here grow the shy cardinal' flower and the dainty lance-leaved violet, not the ordinary white violet found elsewhere, but the rare and dainty kind that covers the ground with a rich carpet of green leaves and white blossoms.

And last but not least sound in The Sound Beach Association, an ideal local organization for keeping the ideals of community life at the highest standpoint and for putting those ideals into practice.

In every direction away from the Sound are lots awaiting the builder. Let us sound the keynote to the people everywhere, and invite them to Sound Beach. Here the most beautiful building sites have been utilized to best possible advantage by skilled architects, carpenters, plumbers and painters. The new residences are adapted to every grade of pocketbook and size of family, and make this an ideal place of residence, one in which it is easy to secure and establish a thoroughly modern home. Few country communities have better railroad facilities. Sound Beach

offers ideal conveniences not only for the one whose interests center in it, but for those with business in the Great Metropolis.

Sound Beach on Long Island Sound My summer home shall be; Or, better far, all the year around, And that sounds good to me.

Sound Beach is sound in being in the heyday of its community life. It has passed the primitive, rudimentary stage. It has not yet become decayed or fossilized. It stands for 1917, with rich memories of the past and tremendous possibilities for the future. It is estimated that there are more than three hundred acres of well located territory in which one may discern the seed of future building lots and happy homes. Sound Beach is not only growing but has tremendous possibilities of growth

Yes, Sound Beach is sound in what it proclaims itself to be—a community of homes, of genial residents—and to this Elysian abode of earnest, happy workers, we extend both hands in cordial welcome. Come; know and love Sound Beach, as we who live here have known and loved it for many years.

### Ice Cream Easily Carried.

More and more the Sound Beach people and those in the remote parts of Stamford are learning that ice cream can be carried in a small hand package on account of the excellent method of packing and the firmness of the cream obtained at Embree's Drug Store, Stamford. This cream is the famous "Harris Hart" make and is of superior quality. Mr. Embree is having an enormous and rapidly increasing business in handling this cream.

If thou art worn and hard beset With sorrows that thou would'st forget,

If thou would'st learn a lesson that will keep

Thy heart from fainting and thy soul from sleep,

Go to the woods and hills;—No tears
Dim the sweet look that Nature wears.
—Longfellow.

.The Old and the New in Dentistry..

It is forty years ago and more since I had a tooth extracted. That dreadful event dates back to the awful days of the old-time dentistry. In my vicinity a German barber practised dentistry as a side issue. In the early days a barber combined hair cutting with the practice of surgery and dentistry, and even in the more recent days of my boyhood the combination had yet not entirely disappeared.

As a boy I looked upon a dentist as a fiendish ogre. I knew that somewhere in the back room he had a pile of forceps and turnkeys, cruel instruments for lifting out teeth, with many other surgical instruments, some of them, at least in my imagination, approaching in size the tongs used by my acquaintance, the blacksmith. I had seen the blacksmith's muscular arm grasp his huge tongs and pull the glowing iron from the forge and pound it so that I and the other children fled from the shop in dismay as the fiery sparks flew in every direction. I held that blacksmith, who frequently chased me from the shop, in the fascination that comes from terror and awe.

The German dentist kept his sleeves rolled up and he had a similarly muscular arm; if anything it was a little more gigantic and apparently more effective of results. I felt through the law of association that this huge "Fritz," when he pulled a tooth, would grasp the tongs from his prolific heap and that the sparks would fly when the molar left its socket. That tooth in my imagination was about the size of a stump in the pasture lot. I knew that when the awful event should take place everybody would run as I had run from the flying sparks. But let me draw the curtain over the awful scene which now shifts, after four decades, to a modern dentist's office.

It is a long, long way from my boy-hood on the farm to the modern dentist's city office, but the associations of the past cluster about the city. When I called on the genial dentist and found him attired in his white suit, I could only think of "Fritz," and when he said, "Excuse me for a moment," and disappeared into the rear room I knew he had gone for the blacksmith's

tongs. I was in no haste, except to get away, and when in came a woman with an agonizing toothache, and the dentist said, "You can wait a little longer, can you not?" I acquiesced, expecting every minute to hear shrieks from the victim in the chair. waited, I heard the woman and the dentist talking cheerfully as if she had come for a social meeting. He even told a funny story and she laughed. I supposed he had told that story a thousand times preliminary to getting in his deadly work. He knew I was sitting only a few feet distant and waiting for those tongs, but he fussed around with a bottle as if he were perfuming her mouth and then disappeared in the back room to return in a few minutes with a hypodermic syringe. While I was expecting the shricks the victim said, "Thank you, doctor, very much; I did not know you had taken it out."

No, I did not faint. I was anxious to escape the funny story and said, "Doctor, if you can extract this big tooth without pain to me, you shall have the finest notice you have ever had. You cannot make me believe that you removed that women's tooth without pain to her. She know I was here. She kept silent to show her bravery."

In the meanwhile the doctor had brought out that bottle. He said that it did not contain cocaine but som?thing better. I knew that somewhere in his coat he had the tongs. started in to say, "Did I ever tell you about—" and I knew this was to be the old story and tried to head him off, but he continued, "Did I ever tel! you about that new local anaesthetic made from a coal tar product?" "No." I said, "you didn't." "Did I understand you," he said, "to tell me that if I extracted your tooth so you would not feel it you would write me a good notice?" "Yes." I said "You may call vourself a painless dentist but you cannot work on my imagination to that extent; you cannot hypnotize me into thinking that something is that is not, and something is not that is" "Wall." be said presently, "I will try to deserve that notice. You may now go bome and write it." "Oh," I said. "take out that tooth. You are getting to the end of my patience with your nonsense. Take it out." "There it is," he said. "Carry it home, and look at it as you write that notice." And it was even so. The tooth was out. He said he would. I said I would. He did his part. I have done mine. His name is Dr. W. H. Pomeroy, of Stamford, Connecticut, and I am so delighted that I could sing a song, "It's a long, long way, not from Tipperary, but from the rotund ogre, Fritz, to the genial and painless Dr. Pomeroy."

### An Expensive Fishing Trip.

An ardent fisherman was President Cleveland, and a writer in the New York Sun says of him that he enjoyed angling for the fish that would not bite quite as much as he did for those that would. While fishing one day, dressed in oil-skins and a slouch hat, he was addressed by an angler garbed in the height of piscatorial fashion with:

Hello, boatman!. You've certainly got a good catch. What will you take for the fish?"

"I'm not selling them," replied the man in oil-skins.

"Well," continued the persistent angler, "what do you want to take me out fishing to-morrow?"

Mr. Cleveland, who was plainly enjoying the joke, replied. "I can't make any engagement except by the season. Will you give me as much as I made last year?"

"You're a sharp fellow," replied the angler, "but a good fisherman, and I'll accept your terms. What did you make last year?"

"Oh," replied Mr. Cleveland, "about a thousand dollars a week! I was President of the United States."— Youth's Companion.

The best thing is to go from Nature's God down to Nature; and if you once get to Nature's God and believe Him, and love Him, it is surprising how easy it is to hear music in the waves, and songs in the wild whisperings of the winds; to see God everywhere in the stones, in the rocks, in the rippling brooks, and hear Him everywhere.— C. H. Spurgeon.

### Our Salamander from Glenbrook.

On page 380 of our magazine for May, we published an announcement of a rare salamander obtained by Mr. Halbert Phillips through the boys' Glenbrook Chapter of The Agassiz Association. This salamander has attracted much attention at ARC \DIA. At present it is in good condition.



OUR GLENBROOK SALAMANDER.

We are indebted to "Aquatic Life" of Philadelphia, and to Dr. R. W. Shufeldt of Washington, for our illustration of the spotted salamander. These reptiles seem to be almost unknown to the majority of people, or when seen they are called lizards, but there are no lizards in this vicinity. I am wondering why this is so. Salamanders are far more famous than lizards, but a salamander on sight is called a lizard. This is an interesting question, because in ninety-nine cases out of a hundred the person speaking never saw a lizard. In bringing this particular specimen on the trolley car from Stamford, it was shown to a few people who all shuddered as if it were something fearsome, although there is not a single disagreeable thing about the little creature. Why is it that all down the ages there have been so many erroneous notions as to such an inoffensive form of animal life?

"Aquatic Life" from whom we borrowed the cut says:

"In Europe during mediaeval times the salamanders bore an undeserved sinister reputation. Many strange powers were ascribed to the inoffensive little animals. One of the old writers advises anyone bitten by a salamander to betake himself to the 'coffin and winding-sheet,' and adds that the victim needs as many doctors as the salamander has spots! This creature was also thought to be able to withstand fire. Aristotle mentions this myth on hearsay, but Pliny actually tried the experiment and put a salamander into a fire. He remarks with evident surprise that it was burnt to a powder! Even in our enlightened country the salamander is thought poisonous by the illiterate. It seems needless to add that all our eastern species are entirely harmless. Only one makes any attempt at self defense. The Purple Salamander, says Cope, snaps fiercely but harmlessly and throws its body into contortions in terror."

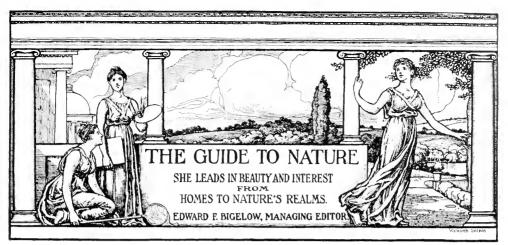
Benvenuto Cellini (in his fascinating autobiography) tells in detail of an experience with a salamander in the fire.

A back translation of a work on natural history—English into German and then German into English—is responsible for the statement that certain birds "feed upon eggs which the fishermen lay." The original had it "water boatmen." The author is said to have been aroused by the tread of some large animal, leaped from his bed and taken down his "back shutters." It was his "breechloaders!"

You should love your neighbor as yourself, And nature is your neighbor: Spontaneous must the feeling be,

And not akin to labor!

-Emma Peirce.



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Volume X

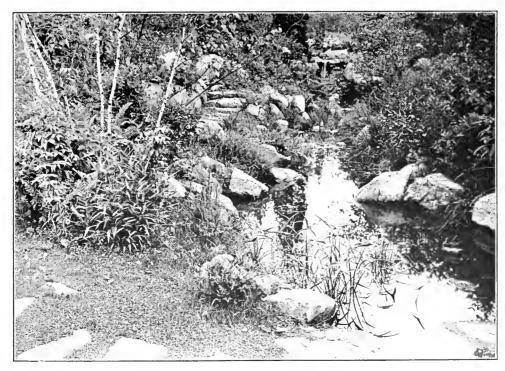
SEPTEMBER, 1917

Number 4

Harmony of the Wild with the Formal.

each appeal to extremes of our nature. The evolutionist tells us that we like the wild because that affection is a

remnant of primitive man. The love Most of us love either the wild or the of the untamed, tangled thicket, the formal but the qualities developed in picturesque rock and the yawning ravine "harks back" to our remote ancestors who lived amid these objects and scenes and the recollections remains



A HARMONIZING TOUCH OF THE ARTIFICIAL IN THE WILD.

Copyright 1917 by The Agassiz Association, ArcApiA: Sound Beach, Conn.



STONE STEPS LEAD ENTICINGLY AWAY AND AWAY IN A MAZE OF REAUTY.

indelibly impressed on our own nerve cells and on the corpuscles of our red blood. When we plant our modern shoe in the print of the moccasin, some of the Indian's love for the out of doors would make our brain tingle if we did not resist it, suppress it and stay in the house behind closed doors. The modicum of primitive man in us is calling, but we deliberately shut him out.

On the other hand the modern landscape gardener tells us that the formal garden appeals to our appreciation of regularity, neatness and symmetrical The two seem to have few points in common, yet we must not forget that all parts of the earth have their antipodes, and the more completely our natures become developed in a love for the finest aesthetics the more nearly do we approach the glory of the full-blown rose and the delicate perfection of the original, primitive wild rose from which its modern successor has been developed. We often experience the homesickness of the stranger in a strange land. We feel that the human rose has traveled far from these tangled ravines and picturesque precipices amid which it had its original home. That spirit that impels a family to abandon a palatial home in the city and remove to the recesses of a wild country is similar to the spirit that impels one psychologically, 1 think, to crave relief from the distinctively formal with a return to the wild and the picturesque. But when we go to that primitive wildness only, we feel that we are not doing justice to the modern man. I know a beautiful estate where a compromise has been attempted by having on one side of the house a primitive wildness and on the other side intense artificiality and formality. But that does not wholly solve the problem. The sudden transition is incongruous. It is a shock. The primitive settlers of America may have been content to follow a sip of tea by a nibble of bard sugar, but modern civilization says, "No," to such primitive methods. We prefer a proper blending. But I know another equally beautiful estate in which the wild and the cultivated, the formal and the irregular, have been mingled in a delightful blending.

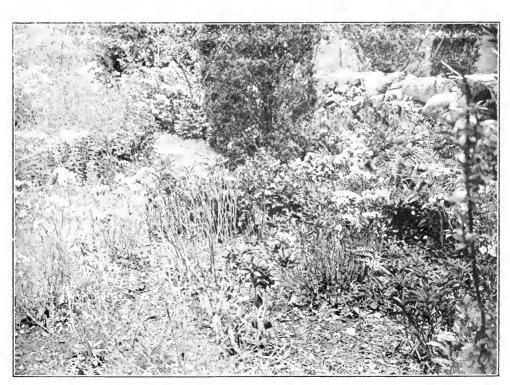
There is no psychological incongruity, no shock to one's nerves.

It is not uncommon to see in the midst of a well kept lawn a heap of stones crowned by a flower bed. One man in Sound Beach has been wise enough to take a natural ledge of rock and to surround the summit with a fringe of stone, and has there placed a diadem of flowers. The arrangement appeals to the spectator as a novelty but, beautiful as it is, praiseworthy as is the intention, the result is not wholly satisfactory. One may study a pile of stone in the center of a well kept lawn and, as he ponders, the more he will be disposed to inquire, "Why not cart away these stones and make the place all lawn?" When he sees a garden on the top of a ledge, he feels that it is about as much out of place as a dead bird sewed on a woman's hat. Gardens do not grow on ledges, and birds do not naturally roost on millinery. The greater the departure from the natural and from the eternal fitness of things, the greater is the mental shock.

With these thoughts in mind, the

editor roamed about the delightful premises of Luke Vincent Lockwood at Riverside, Connecticut. Here are bits of the formal interspersed amid the primitive wildness of ledges, pools, brooks, lakes, with even that wildest of all wild plants, our Connecticut state flower, the mountain laurel, the Kalmia latifolia. The place looks right. It is pleasing. It gives one a feeling of happiness, even the naturalist accustomed to the exploration of the wild and to the finding of Kalmia in the sanctum sanctorum of nature. Here its delightful little white umbrellas, cups, saucers, as the children call them, add a pleasing touch of perfection and of contrast to this rock garden.

Here is no graded walk nor walk of cinders nor of comminuted bluestone flagging. The path is suggestive of that that every country boy knows when he goes barefoot on a frosty morning into the pasture and steps along from stone to stone. It is evident that the owner, as well as the landscape architect who helped him, appreciates the beauty of a stone pasture. Its beauty can be developed



LOVELY LINES OF LAUREL LINGER BY THE LANE,



THE HOME OF LUKE VINCENT LOCKWOOD, RIVERSIDE, CONNECTICUT.

artificially only through unusual skill. the attempt to duplicate artificially such a natural thing is almost impious.

Mr. Shedd of Greenwich, skillful writer of aphorisms, several years ago wrote this suggestive sentence, "If you can't have a tiger, get a cat." Another of the editor's friends says, "If you can't have a lake and waterfowl, get a frog pond and a goose." A valuable principle is enshrined within these aphorisms. I would not envy a man with a big lake and many waterfowl if I had a frog pond and one goose, but there is a more satisfactory middle ground that Mr. Lockwood appears to have discovered unaided. He has taken a small brook and developed not a creek but an interesting ravine that offers all the brook's value from the artistic, aesthetic and soul satisfying point of view. The lake is not large, but its landscape value gives it the effect of size. He has skilfully developed and widened the little brook into a picturesque, embroidered pool of rather elaborate dimensions, fern embroidered, flower sprinkled, satisfying. A charming effect has been secured by a clear space kept as a perfect lawn, yet in close proximity to a natural ravine and a fern fringed, mimic precipice.

The accompanying illustrations show only a few aspects of this delightful rock garden. Mr. Lockwood is to be congratulated upon having so beautiful a home in so delightful a setting, where the primitive wild is so pleasingly blended with the formality of the modern gardener's landscape.

The discussion that has been going on in "Science" of various syncronized rythmic actions in groups of the lower animals has lately brought out the curious habit of the larvae fall web-worm. (Hyphantria cunca). Every few minutes, the caterpillars start swaying their bodies from side to side in perfect unison, keep it up for a minute or so, and then stop. No cause yet appears. This whole field offers an uncommonly good chance for the amateur observer.

The Passing of the Wild Flowers.

BY BESSIE L. PUTNAM, CONNEAUT LAKE,
PENNSYLVANIA.

While scientists are lamenting the total extinction of the passenger pigeon and other birds, and are foreseeing a similar fate for still others valuable to man, it is fitting that a plea be made for the protection of the wild flowers. We have a flora rich and in many respects unique. There is a retiring delicacy among American wild flowers which renders them at once attractive and, at the same time, more or less dependent upon us for their very exis-The professional root digger has decimated plants with real or reputed medicinal value, notably the beautiful bloodroot. But even more disastrous is the habit of picking the flowers—just for amusement!

The world seems to be plentifully supplied with inhabitants that are not only thoughtless and careless but unutterably selfish. Only a few days ago I saw two immense branches of dogwood blossoms adorning the front porch of one of the finest residences in Meadville. They extended from the floor to the top of the door, the spoils of an automobile raid of the previous day. Somewhere was left a badly mutilated tree. Why did the vandals leave any? Why not take all? The country people are beginning to complain that automobile riders are despoiling their fruit trees for the sake of the "beautiful bouquets," criminally careless of the fact that for each blossom destroyed an apple or a peach may be taken from the vear's harvest. The people thus treated are beginning to mention such words as powder and shot. The same words should justly be brought to the attention of those selfish and careless automobile riders, as well as others who destroy our wild flowers for their own pleasure. Every season brings with it great bunches of trailing arbutus to the city markets Children are encouraged to gather for Decoration Day memorials thousands of trilliums, unconscious of the fact that their well meant offerings are really a desecration of nature's sanctuary. Nothing but death is left for the root thus robbed of its foliage.

Some twenty years ago a woman who had always lived in the Middle

West visited a relative in the East and was charmed with the waxy white blossoms of Chimaphila maculata, then in full bloom. "I'm going to see how many blossoms I can find," was her exclamation. Every plant which met her eve was gathered. But—never since then have those woods vielded more than the merest scattering of the flowers she "loved!" One man in Iowa has a preserve of half an acre into which he has gathered the species indigenous to that region. In a smaller way, there are rockeries in the home garden where some of the native plants will thrive. And most assiduously should we abstain from carelessly uprooting or decapitating treasures which nature cannot readily replace.

### The Work of a Tornado.

The tornado which in May of this year killed more than a hundred persons in Monroe County, Indiana, left a track over two hundred miles in length with almost forty miles of complete devastation. The path of utter destruction was from five hundred to seven hundred feet in width. Outside this were two zones from three hundred to five hundred feet wide where buildings were damaged beyond repair but not laid flat. Still further out buildings lost roofs and chimnevs and window glass. The usual counterclockwise whirl was well marked. Objects on the right of the center were carried forward and inward, those on the left, backward and inward. usual the area of greatest devastation was at the right of the storm track, where the forward movement and the whirl combined to give the greatest wind velocity. The blast was so powerful that it twisted off huge oak and elm trees and overturned freight cars loaded with brick.

#### Gold Thread.

There must still be fairy sewing-bees.
For we find their golden thread
All lying about in sylvan dells,
When fairy feet have sped.

And gossamer garments must they be, With caps and wings and things, All fashioned as easily as dew falls, Or the bird in the tree-top sings.

-Emma Peirce.



All communications for this department should be sent to the Department Editor, Mr. Harry G. Higbee, 13 Austin Street, Hyde Park, Massachusetts. Items, articles and photographs in this department not otherwise credited are by the Department Editor.

The Sea Gulls Save the Crops.

No event in Western history awakens more interest than the episode of the Crickets and the Gulls. It occurred in 1848, when Salt Lake City-the earliest settlement in the Rocky Mountains—was less than one year old. The so-called "City" was not even a village at that time; it was little more than a camp, consisting of a log-andmud fort, enclosing huts, tents, and wagons, with about eighteen hundred inhabitants. Most of these had followed immediately after the Pioneers, who, with Brigham Young, their leader, arrived on the shores of the Great Salt Lake in July, 1847. President Young and others had returned to the Missouri River to bring more of their migrating people to their new home among the mountains, and those who remained here were anxiously awaiting the results of their first labors to redeem the desert and make the wilderness to blossom.

Some plowing and planting had been done by the Pioneers upon their arrival, but the seeds then put in such as potatoes, corn, wheat, oats, peas and beans, though well irrigated, did not mature, owing to the lateness of the season. The nearest approach to a harvest, that year, were a few small potatoes, which served as seed for another planting. It was therefore their first real harvest in this region that the settlers of these solitudes were looking forward to, at the time of the episode mentioned.

Much depended upon that harvest, not only for the people already there,

but for twenty-five hundred additional immigrants, who were about to join them from the far-away frontier. The supplies brought by those who came the first season had been designed to last only about twelve months. They were gradually getting low, and these settlers, be it borne in mind, were wellnigh isolated from the rest of humanity. "A thousand miles form anywhere," was the phrase used by them to describe their location. They had little communication with the outside world, and that little was by means of the ox team and the pack mule. If their harvest failed, what would become of them?

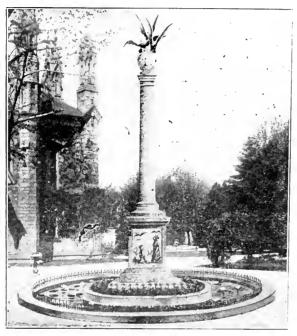
In the spring of 1848, five thousand acres of land were under cultivation in Salt Lake Valley. Nine hundred acres had been sown with winter wheat, which was just beginning to sprout.

Then came an event as unlooked for as it was terrible—the cricket plague! In May and June these destructive pests rolled in black legions down the mountain sides, and attacked the fields of growing grain. The tender crops fell an easy prey to their fierce voracity. The ground over which they had passed looked as if scorched by fire.

Thoroughly alarmed, the community—men, women and children—marshaled themselves to fight the ravenous foe. Some went through the fields killing the crickets, but crushing much of the tender grain. Some dug ditches around the farms, turned water into the trenches, and drove and drowned therein the black devourers. Others beat them back with clubs and brooms, or burned them in fires. Still the crickets prevailed. Despite all that could be done by the settlers, their hope of a harvest was fast vanishing—a harvest upon which life itself seemed to depend.

They were rescued, as they believed, by a miracle—a greater miracle than

is said to have saved Rome, when the cackling of geese roused the slumbering city in time to beat back the invading Gauls. In the midst of the work of ruin, when it seemed as if nothing could stay the destruction, great flocks of gulls appeared, filling the air with their white wings and plaintive cries. They settled down upon the half-ruined fields. At first it looked as if they came



THE MONUMENT TO SEA GULLS.

but to help the crickets destroy. But their real purpose was soon apparent. They came to prey upon the destroyers. All day long they gorged themselves, disgorged, and feasted again, the white gulls upon the black crickets, like hosts of heaven and hell contending, until the pests were vanquished and the people saved. The birds then returned to the Lake islands, leaving the grateful settlers to shed tears of joy over their timely deliverance.

A season of scarcity followed, but no fatal famine; and before the worst came, the glad people celebrated, with a public feast, their first harvest home.

The gull is still to be seen in the vicinity of the Great Salt Lake. The wanton killing of these birds was made

punishable by law. Rome had her sacred geese: Utah would have her sacred gulls, forever to be held in honor as the Heaven-sent messengers that saved the Pioneers.—Orson F. Whitney.

### The Sea Gull Monument.

To commemorate the above historic incident, a sea gull monument has recently been completed and un-

veiled upon Temple Block.

For several years the erection of such a monument had been contemplated, and a few years ago, Mahonri M. Young, a grandson of the great pioneer leader, Brigham Young, submitted a design which was accepted by the First Presidency and he was authorized to proceed with the work.

The granite base, weighing twenty tons, rests upon a concrete foundation. From the base rises a round column of granite fifteen feet high, surmounted by a granite globe.

Two sea gulls of bronze rest upon the granite ball. The birds weigh about five hundred pounds and the stretch of the wings, from tip to tip, is eight feet.

The unveiling ceremony took place on Wednesday, October 1st, 1913.

The tablets are thus described by B. H. Roberts:

"The graceful Doric column of the monument surmounting the base, is fifteen feet high and is topped by a granite sphere, on which two gulls are seen in the act of lighting upon it—a most graceful thing in itself—and Mr. Young, the sculptor, has caught the action of it true to life.

"On three sides of the high base, in relief sculpture, the Sea Gull story is told: The tablature on the east tells of the arrival and early movements of the Pioneers. In the left foreground of the rugged Wasatch mountains there is the man afield with ox team, plowing the stubborn soil, aided by the boy driver, followed by the sower. In the

right foreground is the wagon home, women preparing the humble meal while an Indian sits in idle but graceful pose looking upon all this strange activity that is to redeem his land from savagery and give it back to civilization.

"The second tablature—on the south—tells the story of the threatened devastation from the cricket's invasion.

"A point of mountain and a glimpse of the placid, distant lake are seen. The farmer's fight with the invading host is ended—he has exhausted all his ingenuity and strength in the fight. He is beaten—you can see that in the hopeless sinking of his figure to the earth, his bowed head and listless down-hanging hands from which the spade has fallen.

"Despair claims him and laughs. With the woman of this tablature it is different. She is holding a child by the hand—through it she feels throbbing the call of the future—the life of a generation of men and women yet

to be.

"Strange that to woman—man's complement—is given such superior strength in hours of severest trial. Where man's strength and courage and fighting ends, woman's hope and faith and trust seem to spring into newness of life. From her nature she seems able to do this inconsistent yet true thing—to hope against hope, and ask till she receives.

"I do not know in what school of psychology the sculptor studied his art, but he has certainly been true to the great psychological difference between man and woman. But to return to this woman of the second tablature—she, too, is toil worn, and there is something truly pathetic in her body weariness, but her head is raised,—raised to what until now has seemed the pitiless skies; but now they are filled with the oncoming flocks of sea gulls. Does she watch their coming with merely idle curiosity or vague wonderment? Or does her soul in the strange gull cry hear God's answer to her call for help? God's answer to her they were, these gulls, in any event, as the gulls soon proved by devouring the destroy-

"The third tablature commemorates the Pioneers' first harvest—worthily, too. In the background rises Ensign

"In the middle background the log house home stands finished; in the foreground, harvesting the golden grain is in progress, both men and women take joyous part. To the right, a mother half-kneeling holds to her full breast a babe, who 'on the heart and from the heart' receives its nourishment, and about her knees another child plays in happy, childish oblivion of toil and care. O, Happy scene of life and joy, 'where plenty leaps to laughing life with her redundant horn.'

"On the fourth tablature is the title of the monument. Fortunately it is simple, and not explanatory—the work of the sculptor tells the story—tells it well and eloquently. Too much narration would have marred it—this is the inscription:

""SEA GULL MONUMENT \*
ERECTED IN GRATEFUL REMEMBRANCE \*
OF THE MERCY OF GOD TO THE \*
MORMON PIONEERS." \*

### The Late Season.

The extreme backwardness of the spring season this year was the cause of much comment. Its effect upon the birds has been marked in many ways. Migrating birds in general seem to have been far behind their usual time of arrival here in Massachusetts. The Baltimore oriole may be confidently looked for in this vicinity on the eighth of May, the tenth being the latest and the fifth the earliest dates on my records for the past twenty-three years. This year they arrived on the eighteenth.

Warblers have been seen and reported in unusually large numbers. This may be partly accounted for by the fact that they fed and remained low in the shrubbery, and appeared in yards and about houses and buildings much more than is their custom. The reason for this is that their usual food has been scarce, owing to the undeveloped condition of the trees and the insects which supply so large a part of their supply. Insects which usually hatch about the first of May were found still in the egg stage on the

twenty-eighth.

The birds' apparent abundance and tameness have given bird lovers a delightful opportunity to observe them at close range, but the lack of food, especially with certain species, and the effects of the prolonged cold storms seem to have produced disastrous results in some localities. Many birds have been reported in a starving condition or have been picked up dead. Cats have doubtless caught an unusual number of the migrants. Two instances in which cats caught warblers near the ground have come to my personal attention. The early nesting birds have probably also suffered considerably from the effects of the storms. Species which usually remain away from thickly settled districts have been reported about the streets and in yards, apparently seeking food.

The general effect of these unusual conditions will probably show itself later in the season by an abundance of insects. Their escape from the birds in their early stages; the favorable conditions for their later development, and the unusual denseness of the foliage upon which they feed, will all tend to bring about this result. This being a season when we more than ever need to conserve our crops, we should do all in our power to fight insect pests and to protect and encourage the birds about our homes.

The editor of this department would especially like to receive notes in regard to the foregoing items. If you know of any nests destroyed or abandoned on account of the storms, any birds found dead or seen to be caught by cats, or if you have made unusual observations upon the migrating birds of this season, write and tell us about them.

#### The Gulls.

The gulls have settled upon the bay, As restless there as the tossing spray: They flutter and preen in the glancing light, An islet of birds, for a novel sight.

A yacht looms up 'gainst the sunset skies,
A target for ever-watchful eyes:
Full well they know it a supper brings,
And the air is filled with the whir of wings.

—Emma Peirce.

### The Whippoorwill.

BY BESSIE L. PUTNAM, CONNEAUT LAKE,
PENNSYLVANIA.

This bird is easily identified by its notes, which are uttered with great rapidity, the word from which it takes its name being sometimes repeated a hundred times or more without seemingly a single stopping to take breath. Its notes commence about sunset, and may be prolonged through the night. To those unacquainted with its good traits, this has been a source of annoyance, and one girl who was visiting in the country for the first time was quite provoked because unable to sleep with that chatterer near her window.

It flies at night, and partly because of this some stories of its uncanny ways and mysterious powers for evil have given to it a bit of awe among the superstitious. Yet it is really one of man's best friends, catching an immense number of harmful, nocturnal insects. Because of its preference for insect life, it is strictly a summer bird, and the old resident states that we are safe from frosts when the whippoorwills arrive.

It sleeps by day like the owl; and if disturbed, its flight is almost as noiseless as that of a falling leaf, while the colors of plumage blend so completely with the surrounding trunks of trees and dead leaves that one can scarcely locate it, even though they know just where it lit. A striking feature is that it always sits lengthwise of the limb or log upon which it rests, thus concealing its outlines more completely. Its nest is slackly made in dry leaves: but if molested it is said to remove its young as carefully as a cat does her kittens. And thus it is one of the many illustrations that the Divine hand is over all, its sleeping by daylight being counterbalanced by protective coloring, silent flight, and unusual pose when at rest.

As a result of the whaling industry established within a few decades at South Georgia, near Cape Horn, the islands have become overrun with rats. Millions of them live on the carcasses of the whales, and they have killed off most of the small creaturees who preceded them.



### A Check List for the Sound Beach Observatory

The Sun, Our Star, Radiates Light and Heat in Every Direction.

The Diameter of the sun is 866,400 miles; that is, 109.4 times that of the earth

The Surface is 12,000 times that of the earth.

The Mass is 333,000 times that of the earth.

The Density is about 1/4 that of the earth or 1.4 times that of water.

The Rotation from the east to the west averages 25.35 days. The rotation is faster at the equator than on either side, showing that it is not a solid mass.

The Diameters of the Spots range from about 500 to 60,000 miles. This may be estimated by comparing the spot with the diameter of the sun.

miles. The thickness of the rings about 100 miles. Composed of "a swarm of separate particles, each an independent moon." Four other moons, not visible except in largest telescopes, are Themis, Phoebe, Hyperion and Mimas.

Uranus's Moons: Seen only in largest telescopes Ariel, Umbriel, Titania and

Neptune's Moon: Seen only in moderately large telescopes. One, not named.

Densities of the Planets. The only planet which is lighter than water is Saturn, though Jupiter, Uranus, and Neptune are each but little heavier than water. The four inner (earth-like) planets are of course much heavier. The larger ones have not yet had time to cool off: it is their high temperature that keeps them so expanded.

The Planets, Our Family, All Receive Light and Heat in Varying Degrees from the Sun.

| PLANET  | Av. Distance<br>from Sun in<br>Millions of<br>Miles | DIAMETER | DAY                   | YEAR                 | MOONS |
|---------|-----------------------------------------------------|----------|-----------------------|----------------------|-------|
| Mercury | 36                                                  | 3,030    | 88 days               | 88 days              | 0     |
| Venus   | 67                                                  | 7,700    | Probably 23 h., 50 m. | 225 days             | 0     |
| Earth   | 93                                                  | 7,918    | 23 h., 56 m.          | 365¼ days            | I     |
| Mars    | 142                                                 | 4,230    | 24 h., 37 m.          | 687 days             | 2     |
| Jupiter | 483                                                 | 86,500   | 9 h., 55 m.           | 11.86 yrs.           | 9     |
| Saturn  | 886                                                 | 73,000   | 10 h₁,14 m.           | $29\frac{1}{2}$ yrs. | 10    |
| Uranus  | 1,782                                               | 32,000   | Probably 23 h.,4 m.   | 84 yrs.              | 4     |
| Neptune | 2,792                                               | 35,000   | Unknown               | 165 yrs.             | I     |

Jupiter's Older Moons—Four in order from Jupiter: I. Io; II, Europa; III. Ganymede: IV. Callisto. (Five others are known but they are not seen except in largest telescopes).

Saturn's Moons: Iapetus, Titan, Rhea, Dione, Tethys, Enceladus. This is in order from most remote. Rings: A, exterior diam. 173,000 miles, 12,000 miles wide. The division between it and B is 1,800 miles in width. B, 17,000 miles wide. C. "gauze" or "crape," 11,000

### The Stars are Distant Suns.

Stars visible to naked eye (estimated)
1st magnitude 12 4th magnitude 313
2nd magnitude 48 5th magnitude 854
3rd magnitude 152 6th magnitude 2,010
Total—3,389

In whole celestial sphere on moonless nights seen by naked eye only from 6,000 to 7,000. An opera glass shows 100,000. In big telescope, 100,000,000.

There are only twelve stars so bright as to be unquestionably called "first magnitude" but some estimates include a few more. Of these twelve only the following eight are visible in this latitude. \* \* \* \* \*

### First Magnitude Stars.

Sirius Altair
Vega Betelgeuze
Capella Procyon
Arcturus Rigel

\* \* \* \* \* \*

### A Few of the Other Bright Stars You Should Know.

Aldebaran Pollux
Antares Spica
Deneb Fomalhaut
Denebola Regulus

### Famous Variables.

Algoi (Beta of Perseus)—a short period (little less than three days).

Mira (Omicron of Cetus)—a long period (about eleven months).

\* \* \* \* \*

### Delightfully Companionable.

Rigel (dainty blue with tiny companion)

Xi of Ursa Major (Mizar, a double, with Alcor).

### A Few Best Double Stars.

Gamma Andromedae (Almaack). Gamma Arietis (Mesartim). Gamma Leonis

Albireo Castor Eta Cassiopeiæ 70 Ophiuchi Omicron Eridani

> Quadruple: Épsilon Lyræ.

### Star Clusters.

Naked Eye: Pleiades, Hyades. Opera Glass: Praesepe, Coma Berenices.

Telescope: Double in Perseus, 13 M in Hercules, 35 Gemini.

Nebula:

Andromeda, Orion.

### How Far Away Are They?

The distances of the planets from the sun (and also from each other) as shown in their table of specifications are measured in millions of miles. Even the nearest stars are too far away for such a

measuring scale. Light travels about 186,330 miles per second. The distance that light travels in a year is used as a measuring unit in stating the distances of the stars. The nearest well-known and very bright star is Sirius which is 8.6 light years distant. (A faint star, Lalande, is 6.9 light years). 61 Cygni is 8 light years.

Many of the brightest and well-known stars are so far away as to be beyond measurement. The well-known Pleiades are supposed to be so far away as to take the light (travelling at 186,330 miles a second) 250 years to reach us. Of course such distances are not only unmeasure-

able but inconceivable!

#### A Trio of Good Ones.

G is the first letter in good, and the G of the Greek alphabet is Gamma. When I was showing some of my favorite double stars to visitors in the Astronomical Observatory, it occurred to me that I had a trio of good ones and that they all are Gammas, and therefore not only really good, but alliteratively good. They are Gamma Andromedae, Gamma Arietis, and Gamma Leonis. I believe that the second one was, according to some authorities, the first discovered. The first in the list is surely what our feminine gazers would call the sweetest companionship of all; a well-known astronomer says that the third is the brightest and most spectacular. As the small boy might say, "They are all beautiful;" but an astronomer might well exclaim, "They are Gamma, good!"

### Inconceivable Distances of Stars.

It is probable that the stars in the Milky Way are from seven hundred to a thousand "light years" away, and as the power of stellar photography has increased, more remote stars are continually revealed. Just think of it! Many of these stars we see not as they existed in our own time or even in that of our forefathers, but as they were before man lived on earth! Perhaps there are some that the people of this world will never see.—Henry Handy McHenry, in "Popular Astronomy."

### The Moon.

Pale wraith in the sky in morning light, It illumes and glorifies the night. —Emma Peirce. The Starry Heavens in September.

BY PROFESSOR ERIC DOOLITTLE OF THE

UNIVERSITY OF PENNSYLVANIA.

The coming of September witnesses the almost complete withdrawal of the striking midsummer group of the Scorpion from our evening sky; as yet no equally brilliant constellation has come to take its place, for the beautiful Taurus, within whose boundaries we find the Pleiades and the Hyades, is still well below the eastern

little over a month; while in the southeast we see the reddish Fomalhaut, a solitary star, which lies no less than thirty degrees below the Celestial Equator, and is thus the farthest south of all bright stars visible in our latitude. Though to us this beautiful star is always seen so low in the south, to those near the earth's equator it is high in the heavens, while to the watchers in the observatories of Chile and the Cape of Good Hope it passes exactly

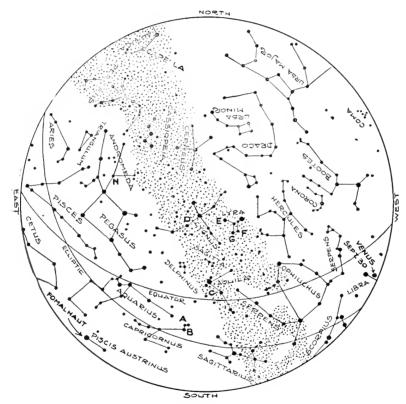


Figure 1. The Constellations at 9 P. M., September 1. (If facing south, hold the map upright. If facing east, hold East below. If facing west, hold West below. If facing north, hold the map inverted.)

horizon in the early evening. By the beginning of next month, however, these latter star figures will appear to herald the long train of bright winter groups which will then be close at hand.

### The September Stars.

In the extreme northeast the beautiful golden-yellow Capella again begins its upward climb over our evening heavens, after its brief absence of but

through the zenith. Five thousand years ago Fomalhaut marked the Winter Solstice; at this time in Persia it was marked out as a Royal Star, one of the four guardians of heaven who watched over and protected the other stars.

Having examined with a small telescope the beautiful flashing light of Fomalhaut, the observer may turn to many other objects of interest in this part of the sky. Thus the star at A Figure 1, is very easily seen to be made

up of two yellowish suns, and it is interesting to know that these two distant objects are steadily moving away from one another. In the course of twenty-five hundred years their distance apart will be as great as the apparent distance across the disc of the full moon.

The star at B is also a wide double, but a far more difficult one since the companion is of a magnitude of but 6.5, and each of these suns is again double. Thus four suns are seen in a large telescope where the eve recognizes but one. The duplicity of the brightest star was first revealed by the motion of our moon across it; the two components were successively covered up by the steadily advancing east edge of the moon, and when our satellite had advanced far enough eastward they reappeared at the western edge one at a time. Altogether there are some half dozen double stars of the sky which have been discovered in this way.

In the region of the heavens between the star, Altair at C, the Dolphin and the stars D and E, the observer will find a large number of beautiful star clusters, nor will he fail to examine the remarkable Nebula of Andromeda, at N, nor (if he possesses a glass of sufficient size) the Ring Nebula of Lyra, which is in a straight line between the stars at F and G but nearer the former star.

### A New Star.

Much interest has been taken by astronomers in the very recent announcement of the appearance of a new star in the outer borders of one of the very faint spiral nebulas. The new object, which was discovered by photography, is described as of the fourteenth magnitude, so that it is wholly invisible except in the largest telescopes. Some conception of its extreme faintness may be formed when it is stated that if no less than two hundred and fifty such stars had appeared simultaneously at the same point their combined light would have rendered them just visible to the naked eye. Any standard first magnitude star is about one hundred and sixty thousand times as bright as the new star.

The sudden appearance of a new star within the borders of a nebula is not

altogether unprecedented. Thus in 1885, in about the middle of August, a star was seen in the Nebula of Andromeda (which is also of a spiral structure) and this object was of the sixth magnitude and so far brighter than the object recently discovered. It was also very near the center of the spiral, nebulous cloud, being only sixteen seconds to the southeast of the nucleus. Whether there had been a sudden falling together of the nebulous material in sufficient quantity to form a new sun, or whether one of the cold and dark suns of space plunged through the nebulous cloud and was thus heated to incandescence, or whether, indeed, its appearance is to be explained in some quite different way, we do not know.

Like all of the new suns which have suddenly blazed out in the heavens. the new star in the Nebula of Andromeda, after attaining its maximum brightness, rapidly began to fade away. The last view of it was obtained with the great telescope of our Naval Observatory on February 1, 1886, only five and one-half months after its discovery, by which time it was of only the sixteenth magnitude. Its light when carefully studied was found to give a continuous spectrum very similar to that given by the nebula itself. It is very remarkable that practically all new stars, even the very bright ones, have faded rapidly away into what appear to be nebulous objects. their sometimes complicated spectra ultimately becoming the typical, continuous nebular spectrum.

It is to be regretted that this most recent of the new stars will probably prove to be too faint for its light to be studied with the spectroscope.

### The Planets in September.

Mercury, which attained its greatest eastern elongation on August 22, will pass to the west of the sun and become a morning star on September 18. It will attain its greatest distance west of the sun on October 4. Thus throughout the month it will be too nearly lost in the sun's rays for satsifactory observation, though during the last few days of September it may be seen rising almost at the east point of the horizon nearly an hour before sunrise

Venus is daily moving eastward from

the sun and is growing perceptibly brighter. Unfortunately, however, it is also moving rapidly southward among the stars so that it continues to set about two hours after sunset during the entire month. It is a beautiful object as it shines in the twilight glow and will well repay examination in the telescope.

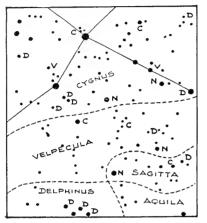


Figure 2. Region between Cygnus and Aquilla, Each star marked D is a double; a cluster will be found at each point marked C and a nebula at each point marked N. Stars which vary in brightness are marked V.

Mars is a morning star, seen far in the northwest for about two and one-half hours before sunrise on September 1, and this time is increased to four hours by the end of the month. The planet in its rapid eastward motion will pass the faint and distant Neptune on September 22 at 5 Å, M. (Eastern Standard Time). The latter planet may conveniently be found on this morning by first turning the telescope on Mars and afterward depressing it exactly 1 degree 18 minutes to the south.

Jupiter is moving slowly eastward and nothward in the constellation Taurus. Throughout the month it will be found almost exactly north of the star Aldebaran of the Hyades and eastward of the Pleiades. This part of the sky is thus rendered unusually brilliant and attractive at present, but unfortunately it is just beyond the borders of our evening map. Toward midnight, however. Jupiter is high in the northeastern heavens.

On the morning of September 4 Jupiter's second moon will reappear from

eclipse at 0 hr. 35 min. 32 secs. (Eastern Standard Time); it will next disappear behind the planet at 0 hr. 50 min. 40 secs., and will finally reappear at 1 hr. 18 min. 26 secs. Similar phenomena may be witnessed on the morning of September 11, beginning at 0 hr. 33 min. A. M., while on disappearance into occultation, and the eclipse of the first moon may be seen, the phenomena beginning at 0 hr. 0 min. 12 secs. A. M.

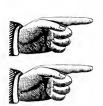
Saturn is found in the northeastern heavens in the early morning. On September 1 it lies about one hour to the east of Mars, but the latter planet rapidly overtakes it. On October 1 at 7 A. M. Mars will pass to the east of Saturn; the two planets will then appear separated by a distance slightly greater than the apparent distance across the moon.

On September 23, at 10 hrs. 1 min A. M. (Eastern Standard Time), the center of the sun will cross the Celestial Equator; at this instant summer will end and autumn will begin. On September 1, at 10 hrs. 53 min. A. M. our irregularly moving sun will be in such a position among the stars that at that instant sundial time will coincide with local mean (or "watch") time. As astronomers express it, at this instant the "Equation of Time" will be zero.

The ninth satellite of Jupiter, reports the Mount Wilson Observatory, is probably about fifteen miles in diameter. Its period of revolution about the planet is seven hundred and forty-five days.

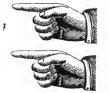
There is no more lonely worship of God than that for which no image is required, but which springs up in our breast spontaneously when nature speaks to the soul, and the soul speaks to Nature face to face.—Goethe.

To the undevout, Nature is simply a workshop; to the Christian, it is a voice; to the Saint she opens at once the inner chamber of her most hallowed mysteries and tells of the goodness and greatness of her Creator God.—H. C. McCook, D.D.



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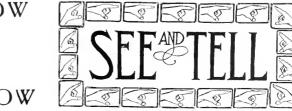
The Young Folks Are Delighted, And So Are
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I

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Hunt Snapping Turtles.

Wisconsin and Illinois can boast of the most noted turtle hunters in the business. These men have discovered a new occupation which serves them profitably in the dull winter months when there is little to do on the farm. There is not only pretty good pay in it for the man who knows how to hunt turtles, and how to market them, but there is at present very little competi-



CATCHING SNAPPING TURTLES.

tion. The common snapping turtle may be found in almost any part of the United States between the Atlantic ocean and the Rocky mountains. These turtles hide in the mud along the streams in the fall of the year and if no one digs them out they remain in the mud until the warm weather of the next spring.

Among the most noted turtle hunters of the country are J. S. Bassler, Max Bassler and C. D. Taylor, of Darien,

Wisconsin, and Byron Sweet and Richard Ferguson, both of Poplar Grove, Illinois. No sooner do the turtles hide in the mud in the fall than these men equip wagons for a two months' trip. Usually they take in southern Wisconsin, southern Minnesota, northern Iowa and northern Illinois. They ship the turtles from any railroad station which they happen to be near. Shipments are made either to Chicago, Boston, New York or Baltimore. Good turtle hunters can go on such a trip and have a fine time and make the trip pay, but unless one is "up to snuff" in turtle hunting he had better leave it alone, as it offers a good opportunity to waste time and catch a bad cold. There are only a few men in the country who have made turtle hunting a success.

Turtles are caught with a fiveeighths-inch steel rod about seven feet in length with a hook turned up on the end which goes into the ground. The hook is jabbed into the ground along the streams and the expert turtle hunters can tell the minute they strike "Mr. Turtle." The hook is jabbed into the turtle's back and the turtle is hauled up out of the mud. Frequently a large number of turtles are found in the same bed of mud. pounds of turtles are dug up out of the same hole. The turtles are placed in bags and carried to the road where they are loaded in a wagon. A bag filled with turtles weighs between 100 and 125 pounds. The turtles are packed in sugar barrels and shipped to market. A sugar barrel filled weighs about 325 pounds. The turtles are packed in alive. one on top of another, and they will live for many days. The animals are worth 6 to 12 cents a pound on the New York or Chicago market. meat is used for soup at the swellest

restaurants, and the shell backs for buttons, and many other useful purposes in manufacturing.

Usually the turtle hunters drive to some country that is well watered with small streams and pitch their tents. The country is then hunted for about ten miles around before moving on to a new camp.

Rex Bassler, of Darien, Wisconsin, is probably the only little boy in the

## Keep Dogs at Home.

I have kept sheep, poultry and a rifle a good many years; have shot a good many dogs for killing both sheep and poultry and in every case where the owners of the dogs were responsible they have paid the damages. Where the owner did not have anything the town paid the damage. Besides, the Sheep Breeders' Association gives a reward of \$10 for every dog



A TEAM FOR THE FUN OF SEEING IT RATHER THAN FOR UTILITY.

world who has a turtle team. The accompanying illustration shows his six "speeders" and the faithful dog "Pat," which sees to it that the turtles do not run away and hide in the mud.

Rex is a lucky little fellow in another way. He has nine living grandparents. There are four great-grandmothers, one great-grandfather, and two grandfathers and two grandmothers. If any of our readers can beat this record for grandparents we would like to hear from them.—Newspaper clipping sent by Mr. Bassler.

Recent studies on the migration of the salmon have completely exploded Isaak Walton's ancient theory that each fish, to lay its eggs, returns to the particular river where it was itself hatched. shot chasing sheep. This is the way we do business in Connecticut.

S. D. N.

Bristol, Conn.

It looks like good business, too. Of course every intelligent man knows that a law may go sailing through the Legislature and carry the Governor's signature and still prove a big fizzle unless the people help enforce it. A dog law will not be worth one single bark unless the farmers put a growl into it. The Connecticut way looks good. There is spice in it and no wooden nutneg at that. No dog has any business, or right, roaming at large off his owner's farm!—Rural New Yorker.

Just as far as the eye could see, A wide sweep of fleur-de-lis Made the common earth we love, Like the vault of Heaven above. —Emma Peirce.



Cut by courtesy of "American Bee Journal," Hamilton, Illinois.

THE FUN OF SEEING BEES CLOSE AT HAND. Mr. I. E. Hull, Maxwell, Iowa, says that he emptys such intimate remaintance.

## Snake Myths.

Snakes do not swallow their young for protection. Snakes do not run like a hoop.

It is hard to say how the myth about the hoop snake originated. I have several times explained that the myth about a snake "swallowing her young" came from the actions of cannibal species feeding upon the young of other snakes.—Raymond L. Ditmars.

## That Amazing Myth that a Milk Snake Steals Milk from the Cows.

From the habit of prowling about the vicinity of stables and dairies (in search of mice and rats), this prettily coloured snake has acquired the bad reputation of stealing milk from the cows, and making inroads upon the farmer's product to such an extent that he may actually suffer financial loss from the depredations committed by one of these reptiles. This is one of the many fallacies existing about snakes, and resulting in an unjust slaughter of really useful creatures. Snakes show no liking for milk. Captive specimens cannot be induced to drink it unless suffering from great thirst. It would be a feat beyond physical possibility for a serpent the size of the largest milk snake to consume enough milk from a cow—even if the reptile should be so inclined—to produce an effect noticeable to the most minute degree. When mature, this snake attains a length of about a yard, and is of rather slender A serpent of this size could consume, if drinking its full of water, a quantity equivalent to about two teaspoonsful; this would demonstrate its capacity for milk, and any cow that fed upon the scantiest vegetation that ever graced fertile soil should yield enough milk to allow for this quantity to be lost without being noted by the dairyman. Incidentally it might be explained that the milk snake frequents country where the grazing is good and the cattle yield much milk. In the face of these circumstances the reader is asked to ponder on the logic of the farmer who declares that a single "milk" snake can steal enough milk from one of his cows to produce a marked deficiency to be noted at milking time.—"The Reptile Book," by Raymond L. Ditmars.

## Big Chips by Beavers.

Hyde Park, New York.

To the Editor:

It may interest your readers to know that a colony of wild beavers is living here in Dutchess County, New York. Nobody seems to know where they came from or how long they have been at work, but it must be a long time.

I went to see their work recently and brought home some souvenirs, one being a section of a birch tree seven inches in diameter that they had nearly cut down. I also brought many of their chips. I am sending you a few

samples of these.

They have built a dam down the outlet of a lake and have raised the water fully three feet. Their work is intensely interesting. I never expected to see anything of the sort. Scores of trees have been cut down. Many have lodged and are leaning in every direction, but more are lying flat and more or less cut to pieces. Some are ten inches in diameter.

I found where their home is—or at least one home—in a steep bank. They had covered the entrance, which was under water, with a large mound of leaves, moss and rubbish some three or four feet thick and twelve feet long. part on land and part in water, to prevent the entrance from freezing in the winter. They made a good choice in selecting this place for their home, for it is one of the wildest and most secluded regions I have ever seen and is difficult of access. This accounts for their remaining so long undiscovered. Their dam is some forty or fifty feet long, and the top, save where the water overflows, is as broad and smooth as anv garden path.

Sincerely yours,

А. Т. Соок.

The aspect of Nature is devout. Like the figure of Jesus, She stands with bended head, and hands folded upon the breast. The happiest man is he who learns from Nature the lesson of worship.—Emerson.

Blue jays are reported to put kernels of corn, small acorns, pebbles and the like in the eccoons of the large Cecropia moths.

## The Spiny Swift.

There is no group of our American reptiles more difficult to study than are the spiny swifts of the genus Sceloporus. are distributed amost over the charge that the country, various forms being peculiar to certain regions or districts. Throughout

Some fourteen or fifteen different species BY DR. R. W. SHUFELDT, WASHINGTON, D.C. of them have been recognized, and they are distributed almost over the entire



THE SPINY SWIFT.

contiguous territories, where no natural barriers exist, the species seem to intergrade, giving rise to the most confusing results imaginable. Variations of every description are to be observed, and the student is at his wits' end to discover characters which can be used to safely differentiate them. As a rule, the number and arrangement of the scales on the body help in identification; but this is not always the case in Sceloporus. As a consequence, other characters must be sought out. Those who have carefully studied them find that the scalation of the head carries one a long ways toward correct indentification in any particular instance.

Our common swift (*S. undulatris*) occurs in most suitable areas where conditions are right from one ocean to the other, and in some places it is particularly abundant. There is a good, natural size figure of this species in my "Chapters on the Natural History of the United States," where its life history is given. In this species, as well as in others of the genus, the male is ornamented with a ventral patch of rich azure blue on either side of the body, offset with black; this is also seen very faintly in the female sometimes.

One of the very largest forms of the genus is the spiny swift (Sceloporus spinosus), which occurs in many parts of northern Mexico; in this country in New Mexico, throughout western Texas, thence eastward over the tier of Gulf States as far as Pensacola, Florida.

Recently, Mr. Edward S. Schmid, of Washington, D. C., received a large invoice of these interesting reptiles from New Orleans, and with his usual generosity he allowed me to select a number of them for the purposes of photography. There do not appear to be any heretofore published photographs from life of this species; so the one here offered, giving both male and female, may prove interesting to nature students. They were taken by me in April, 1917, and of the size of nature. The male is shown on the upper side of the limb and the female below. It will be noted that in this species the conspicuously keeled scales are very large and sharply pointed, giving the reptile a very roughish coat. The general color is gravish or dull greenish, with sometimes a dash of vellowish tan. Pale transverse bands occur at intervals on

the body, to become rings on the tail. In the male, a large patch of dull black occurs over the shoulder, faintly margined with grayish-black. These latter characters are never present in the female, while the broad, longitudinal stripe and other minor characters are so evident in my photograph that they require no especial mention.

As in the case of nearly all the species of swifts, this one, too, lives largely an arboreal life, or on old, fallen trees stretched upon the ground. It can run with the speed of a race-horse, and, as in our common form, dodge around on the bark of the tree with all the alacrity of a chipmunk. At night they often burrow under ground, near the foot of a tree, and remain there until morninga habit they keep up in captivity if sand or soft earth be supplied them, which it always should be if we make pets of them-They eat many kinds of insects, some of which probably are of the pest order, and therefore these lizards are quite beneficial with respect to man's interests.

Twenty-nine cetaceans were reported stranded on the shores of the British Isles during 1916, one more than the year before. Among them was a suckling sperm whale.

## War Diet in the Zoo.

The animals of the zoological park in London have gone on war diet. The carnivora get only horse fleshwhich was never so cheap or abundant as now. Potatoes, of which fifteen thousand pounds a year were formerly consumed, are now not used at all. Bread for the monkeys and apes is now only ship biscuit that has made one or two voyages and is not fit for human food. Instead of wheat and oats the little mammals and the birds get dari, paddy rice, horse beans, and locust beans and Indian corn. For hav has been substituted the grass clipped from the city parks. Even bananas, formerly eaten by many birds and small mammals, are now replaced by boiled wurzels and beetroots. The number of animals also has been greatly reduced, partly by killing such as could be easily replaced and partly by not replacing those which die.

[Reprinted from our August number to correct an error of omission.]

#### "DON'T GIVE UP THE SHIP."

"Roll the Sleeves Higher and Try Again."

"Bring in the candles and let us go on with the work," (as commonly quoted), were the immortal words of Abraham Davenport in the legislative halls of Hartford at the time of the famous Dark Day.

Whittier's poem metrically puts this saying as follows:

"'No faithless servant frightened from my task.

But ready when the Lord of the harvest calls:

And therefore, with all reverence, I would say.

Let God do His work, we will see to ours. Bring in the candles.' And they brought them in."

These are our dark days, due to the world-wide crisis, but it is a time for a steadier and firmer clinging to all good things. It is not well to let go. The situation now in war time is different from what it is in any other time only because it demands a little more work on behalf of all good things.

The sensible words from the famous Stamford lawmaker, the unperturbed Abraham Davenport, have come ringing down the decades. In recent times another famous lawmaker of Stamford, the late Honorable Samuel Fessenden. said in terms equally terse and equally praiseworthy though perhaps rather more startling, "God Almighty hates a quitter." Neither Davenport nor Fessenden enunciated a new fact. They only, each in his own way, emphasized the old truth taught by the Divine Man, "No man, having put his hand to the plough and looking back, is fit for the kingdom of God."

These are the times in which every good thing should be sustained, and with more tenacity than ever. Every bad thing and every foolish thing and every pernicious pursuit and institution should be discarded.

## A Recess from War Talk.

When a well-known man recently called at ArcAdiA, after the usual greetings I inquired of him, "What is the latest in this morning's papers about the war?" He held up both hands in protest and said, "Now, please, give me a little rest from war. I hear it everywhere. I see it in the papers, it glares at me from billboards and show windows. I thought I would come to ArcAdiA for a few minutes to get a little relief. I do not want to hear a single word about the war.'

"Sorry, but I did not mean-"

"Oh," he said, "you meant all right and so does every one else. I do it myself. We ought to talk war. The newspapers should have a great deal about it, and the ministers should preach about it, and I thoroughly believe in this Liberty Loan, Red Cross nurse, economy of food and Home Guards and all the frills and fixings that go with war. But once in a while, and I hope you do not think me unpatriotic, I want to quit it all, and that is why I came to Arc Add."

Unconsiously he voiced exactly what we have in mind when we omit from this magazine, and ordinarily from conversation with our visitors, all reference to this war. Because the man was particularly interested in this war and perhaps knows more about it than anybody else because he has been right on the spot, I thought to please him by mentioning what I supposed to be his favorite topic. And so it is with you, my dear reader; you read, you think, you give, you sacrifice, you economize more for the war than for anything else that has ever come into your life. You do it gladly, but deep in your heart there is a feeling that once in a

while, even for a brief space, you want to think and hear about something different.

THE GUIDE TO NATURE has this great distinction: it is the only periodical that is not at present filled with war We believe this brief editorial is our only venture into that field. Kindly excuse us for even this. This magazine and ArcAbiA stand for the recess from all forms of strife. Some of my friends who are not readers of this magazine feel disappointed because they think our magazine is not "local" enough. But we have no desire to compete with the local newspapers. We have no desire to chronicle the sad and dreadful things of life. There are plenty of them, but we prefer to go to nature for relief, rest and refreshment.

Are we less local because we tell of the beauty of a local flower garden, of the life history of some moth that a friend has discovered, or detail an observation in regard to unusual eggs that some one's local hen has laid? Is there not a multiplicity of interesting things in the local nature around us? Can it be possible that so many people think life is all fight, fierceness and

There should be in every life some respite from the routine, some breathing and resting spells, not only for the body but for the mind. The keynote, the sustaining note, the "pedal point" of the little poems that we have published so freely and frequently from Emma Peirce is that in only a few lines she asks you to leave war-like things for a few minutes and to come to nature for relief and refreshment. She sings you a little song of perhaps only four lines, and yet she makes you think that after all there is something in life worth the living. More and more earnestly are we trying to appreciate this point of view. There was a time when in our own local community it would have been difficult to find a dozen readers for The Guide to Nature, vet now over all Sound Beach, Stamford and Greenwich there are readers by the hundred. The magazine is sought for, read and appreciated. People nowadays are craving what that visitor at ArcAdiA was craving, a relief from the presence and the thought of the awful things of life. The success

of this magazine is due to the fact that we are giving the material of that recess.

But we have not vet got everybody. We admit that. Once in a great while some one says, "Why don't you have something exciting in that magazine? It is too tame. You ought to get up an interesting story."

A good and well meaning friend recently remarked, "Do you not know this is an utilitarian age? Even in your own field you are missing a lot of opportunity. You ought to tell the people how they can make more money by keeping honeybees, how they can raise bigger crops in the garden. The country magazines publish many papers to tell the reader how to keep bullfrogs and skunks and pigeons. Dou't you know there is money even in pet mice? I know you are a naturalist and want to do things right along your own line, but why don't you do these things that people want you to do, and make a big lot of money? In this modern scientific age there is room for a magazine that will tell people how to make money out of nature."

I have no dispute with this kind friend. Probably money can be made along the lines he mentioned. We do not cover the so-called current events of the day, even locally, but we do give the latest interesting observations of the heavens above, the earth beneath and the waters under the earth. We may not tell how to make money from frogs' hind legs, because there is more to a frog than legs, and even those legs do not exist only to gratify the epicure. We believe in money (the Lord knows we need it hadly enough); we believe in this just war. Nations must struggle and there must be a substantial basis even for schools, churches and The Agassiz Association. Not for a moment do we decry the times, but along with the times and through the times we try to give you a little relief and rest from the pretty continuous struggle for existence.

With nature so near, overflowing with cheer, Why looking disgruntled and sad? Only give her a chance, and she will en-

hance.—

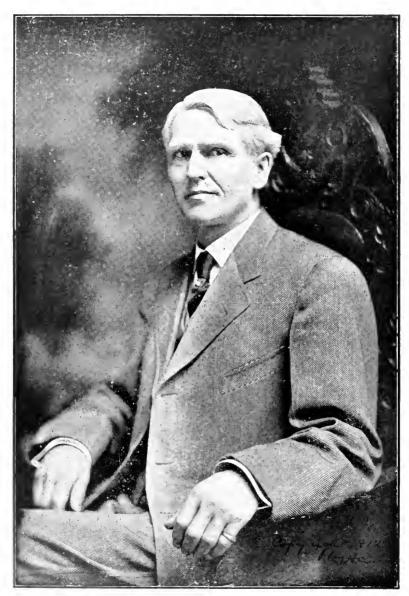
—Emma Peirce.

Nay, treble the joys you have had.

#### School-teachers and Naturalists in High Office.

school-teacher, an instructor of teachers and incidentally a naturalist. He,

a heart more interested in natural history reading than in any other kind. The editor of this magazine is a I believe that in his heart he cares more for his reputation as a naturalist than for his popularity as president and in-



WOODBRIDGE N. FERRIS, BIG RAPIDS, MICHIGAN.

therefore, rejoices in the prominence given to these occupations or professions in recent years by some of the highest official personages of the land.

Everybody knows that Colonel Theodore Roosevelt, Ex-president, has

telligent worker along various other official lines.

There is William Howard Taft whose genial smile suggests his happiness when a word is said to him about his leaving the presidential chair to become a teacher of the young law students at Yale University. This for him was a step upward. There is no higher calling than that of a school-teacher, whether the things taught are the principles of Blackstone or of the multiplication table.

Every teacher thrills with pride when he remembers that a great schoolteacher is now president of the United States. President Wilson is not only an inspiration in enthusiasm and in patriotism but in school-teaching. He perhaps is the best example that this country has ever had of a school-teach-

er president.

Teachers have become governors of states, but doubtless the greatest example of this kind of great schoolteacher is the highly honored ex-governor of the big state of Michigan, Woodbridge N. Ferris. No governor was ever more beloved. No governor of any state more keenly realized the duties of his high office or set a higher example in moral methods than the chief executive of that state. four years he is back in the educational harness. He will devote the remainder of his life to the Ferris Institute, Big Rapids, Michigan. It is the impulses of his big heart that make the big school known as the Ferris Institute a unique institution. No other school can be compared with it. The Institute is not a college but a great secondary school for the training of men and women in constructive thinking There one may find young people and gray haired adults in the same class. In one room are two hundred stenographers taking dictation; in the adjoining room about an equal number are learning how to conduct a drug store. In one room the visitor will find an elderly foreigner reading a primer and across the hall he will find a class in the higher mathematics.

It is the strangest school on earth. It is the direct antipode to all the ideas of an ordinary school. It is a school of life itself. It has none of that old-fashioned notion that one should go to school for only a few years of his life. Teacher Ferris has exploded that with the bombshells of his own inspiration.

Personally Governor Ferris, Teacher Ferris or plain Mr. Ferris, is a regular Abraham Lincoln in his pleasant, rugged countenance, big-heartedness and sterling ability. He sees further than most men, and in the lofty region in which he abides he sees more clearly than most men.

Throughout the West he is in demand at Teachers' Institutes. He has the most astonishing methods of any teachers' instructor on the platform. He strikes at his hearers with a staggering mental blow that inspires love and enthusiasm. No other speaker on any platform says things so strangely, so vigorously and in so antagonistic a way nor so thoroughly endears himself to every one that hears him.

The editor has for a long time felt that Mr. Ferris deserves every good thing that can possibly be said of him. An unspeakable sorrow has recently entered into his life. His wife has passed before him into the "great silence." but he continues the school work in which she was for many years his chief companion and helper. With how much pain and effort he alone knows. But toil is a boon to sorrow.

He is the type of the old school of the old fashion, and yet the principal of one of the most modern schools in the United States. He stands alone as the Abraham Lincoln of the school-teaching profession.

## Personal Appreciation by Aloha Camps.

The editor of this magazine, accompanied by his daughter, Miss Pearl Agnes Bigelow, spent two weeks as nature instructor at the Aloha Camps, at Pike, New Hampshire, and Fairlee and Elv, Vermont.

"Scamp Spirit," the official publication of the camps, publi-hed the following words of welcome and appreciation:

## DR. BIGELOW'S VISIT.

Seldom has Aloha Club's ever-open heart been as quickly and completely won as it was by Dr. Bigelow, naturalist and astronomer, President of The Agassiz Association, formerly Nature and Science Editor of the St. Nicholas Magazine, and "Daddy" Bigelow, to the girls and boys. The Camp capitulated at once to his large and magnetic personality and he was our Pole star

for his all too short visit. Every hour of his stay was filled with an exposition of his novel and thrilling method of nature study which is best described in his own words, "I do not teach nature study. What I like to do is to introduce young people to Nature and to help build up a firm understanding between them." He introduced us rovally and I think our understanding is many times what it was. Indeed it could hardly be anything else after our walks with "Daddy" Bigelow, our story telling contests and the lovely woods games we played. Star gazing became a joy when the heavens were revealed to us as a mammoth circus in which we placed the animals and who could forget a detail of the solar system when we made our own living one, on the grass.

I doubt if there is a single "Clubber" today who is not a convert to the theory that "it is better to know one thing and be able to use the English language to tell about it, than to have many, many crosses on one's 'checking list.'"

## DADDY BIGELOW

Of campers we have quite a charmin' variety,

Far removed from larnin' and piety, But I'll advance you without impropriety

Our Daddy Bigelow's the flower of them all.

Here is a health to you, Daddy, dear friend,

How you've got such a knack sure I can't comprehend;

Powerfullest preacher and tenderest teacher,

Faith, may your visit to us never end!

## Not for Pity but for Love.

Pity is commendable but it is not so good either for the recipient or for the giver as is love. "But the greatest of these is love." That expression sounds familiar. It has been said by thousands of people and preached eloquently by hundreds and yet how comparatively few practice it. Thousands of dollars are given for pity where one dollar is given for love, but if love is really the greatest thing in the world, this situation should be reversed. Money, as an indication of the relative values

of pity and love, is far more readily obtained on solicitation when the object is to relieve suffering rather than to increase happiness or personal uplift and improvement. It is right that millions should be given to alleviate the suffering of the victims of the battle field, to help the suffering victims of sickness, poverty, misfortune, accident. The immense and innumerable gifts along these lines speak well for human nature. But with all the commendation that should be given for gifts to relieve any form of suffering or misfortune, I hear ringing a higher praise, "But the greatest of these is love." It is easy to circulate a subscription paper or to sell tickets to obtain gifts for the alleviation of some form of suffering. We give to our friends and members of the family because they give to us. The ideal is much higher if we give to make some one happier, to induce him to think better and cleaner thoughts, to know what it means to live a better life, if we give with no expectation of remuneration, no expectation of complacency to our own feelings because we have relieved a little suffering. Should not the consolation of giving happiness and betterment to a fellow being be even greater than the consolation of having alleviated suffering? For the greatest of these is love. Yet the sweetest and most gracious things of life come from kindly disposition toward our friends and acquaintances. A pleasant smile, a jovial word to a friend on the street is as much needed and valued in this present age as is the penny dropped into the cup of the blind man selling lead pencils from the curbstone. Suppose one were limited amid the good things of life to these pennies, and that we had not the ability to be kind and helpful to our fellows, much would be taken out of life!

It is evidently easy to obtain money to take some man into court to restrain him from pounding his horses, but how difficult it is to obtain money to help a boy to grow into a man that shall respect every form of animal life. How easy it evidently is to put out the moneyed hand of law to say, "You shall not shoot that bird and wear it on a hat." It is easy to obtain a dol-

lar for that purpose where it is difficult to obtain five cents to buy that girl a book on birds or a field glass or a copy of a magazine article that shall teach and inspire her never to want a dead bird on her hat. The Educational Humane Chapter of The Agassiz Association stands for the law of love rather than for the love of law. We stand for love more than for pity. It is as important to "set" a broken point of view or to heal a cancerous mental sore as it is to set a broken leg or to provide for a smallpox victim. There are epidemics of evil that need remedving, that need their antiseptics, but through love.

These thoughts were suggested by a recent remark of a prominent citizen of Stamford. I solicited a small gift from him to carry on the work of ArcADIA, telling him of the large number of visitors, especially teachers and school children. He coldly replied, "Those teachers and other men and women that you tell about are ablebodied. There is no trouble with them. They should pay for what they get at ARCADIA, as well as anywhere else. Charge them a quarter every time they come, and charge the boys and girls five or ten cents each, and you will soon find that you will not have so many visitors; then you will not be around to beg money from me." I did not get a single five cents from him and he is a kind-hearted man. Had I solicited him for some form of suffering the pocketbook would have come out instantly and a five or ten dollar bill would have been handed to me.

What is the trouble? Do we not really believe that the greatest of these is love, or do we believe it and not practise it?

The Microscope. By Simon Henry Gage. Ithaca, New York: The Comstock Publishing Company.

This is the greatly enlarged and improved edition for 1917 of a well-known standard book. Professor Gage is a technical microscopist and at the same time a genuine amateur. He is an expert with an amateur's enthusiasm. In that spirit, he makes the old-time love of microscopy still live in modern biological science. He also knows, what to the reviewer is even better, that the microscope is a thing of joy forever. Its use is always a tonic and never a task, if rightly viewed.

The new retail price of "The Microscope" is three dollars per copy. The former price was two dollars, but the increase is not due to the high cost of living, nor even to the increased cost of paper, but the book contains an ad-

ditional dollar's worth of text, illustrations and general improvements.

HISTORIC PLACES OF NEW ENGLAND. By Herbert F. Sherwood. Issued by the General Passenger Department of The New York, New Haven and Hartford Railroad.

The author is well-known as an interesting writer, lecturer and photographer. The railroad company could not have selected a writer better qualified to describe the historic places and interests of New England. The book is interesting and useful. It contains valuable illustrations of historic spots and many historical data. Any one interested in New England—and who in all the United States is not interested?—can obtain a copy by addressing the General Passenger Department of The New York, New Haven and Hartford Railroad, New Haven Connecticut.

The Motivation of School Work. By H. B. Wilson and G. M. Wilson. Boston, Massachusetts: Houghton Mifflin Com-

This is an interesting contribution to the much mooted question as to what extent children should be controlled and guided and to what extent they should have their liberty to follow their own will. On no other phase of child psychology are there so wide and varied opinions as on this one of personal liberty and personal motive on the part of the child. There are teachers and parents with a widely diverging range of view. Some say, "Let the child do as he pleases." Others make the child a mere machine to be operated by the teacher: still others make a mixture in varying proportions. In reply to a personal letter, Mr. H. B. Wilson, who is Superintendent of the Topeka, Kansas, Public Schools, writes as follows to the editor:

"My thought in writing this book was to do as much as possible to eliminate the drudgery from the lives of children in the public schools. The point of view is thoroughly established in the teaching staff here, and most of the work proceeds upon the basis of adequate motives in the lives of the children. I acknowledge that we do not see yet how to motivate all the thines that it is considered necessary to require children to master, but we have made a long step in that direction. Our attack at present is upon the Problem as the Basis for Teaching. Since having a problem to work upon is the real basis intellectually for motive, we find it is giving us a bigger hold on the problem of motivating the work the children do.

The authors have produced a book that really gives concrete help of a fundamental kind on the part of the teacher. The efforts toward motivating, toward organic education, the Montessori methods, with many others, are all commendable, but the editor believes that the truth is in none of the extremes but somewhere in the middle ground, the via media. "God speed to every effort that shall help to solve the problem and shall train the child in his personal libert; and

the freedom of his will."

| Contributions for Little Japan. Mr. Arthur A. Carey, Waltham, Mass. (Second increase—                                                                                                                                                                   |
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| Previously acknowledged 799.00  Total \$823.00  For Growth and Efficiency.  Visitors at ArcAdiA \$ .25  Miss C. W. Ritch, Stamford 5.00  I. Zipfel, D. C., Willimantic, Conn. 4.00  Mr. E. Hartwright, Sound Beach 5.00                                 |
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Miscellaneous Contributions

Mr. J. A. Kearful, Ada, Montana: Two Indian arrowheads—one flint, the other apparently iron.

Mr. W. A. Wescott, Sound Beach:

Luna moth.

Mrs. S. O. Edmonds, Sound Beach: Cloaked knotty horn beetle (*Desmoccrus palliatus*).

Master Lansing Van Wickel, Sound Beach: Sundrop (Oenothera pratensis). Miss Charlotte Mansell, Sound Beach: Polyphemus moth (Telea poly-phemus).

Miss Margaret Ferris, Sound Beach:

Calosoma beetle.

Norfolk & Western Railway Company, Roanoke, Virginia: Thirty-nine named and numbered specimens of minerals gathered along the railroad.

Mr. Emil Bertolf, Sound Beach:

Polyphemus and Luna moths.

Dr. William T. Godfrey, Stamford: Mounted specimen of starling and of purple grackle.

#### In the Park.

The azalea's brilliant beauty
At the foot of the sombre pines,
Burns bright as a beacon camp-fire,
That the hunter's trail defines.

-Emma Peirce.

Your magazine is one of my treasures. I have received more inspiration and help from it than from any other I ever read.—Annie Halliday Adams, Camden, New Jersey.

The uncommon cold of the present spring in this country has extended also to Europe. Among other effects, has been the death from starvation of great numbers of starlings, thrushes, gulls, and especially Lapwings.

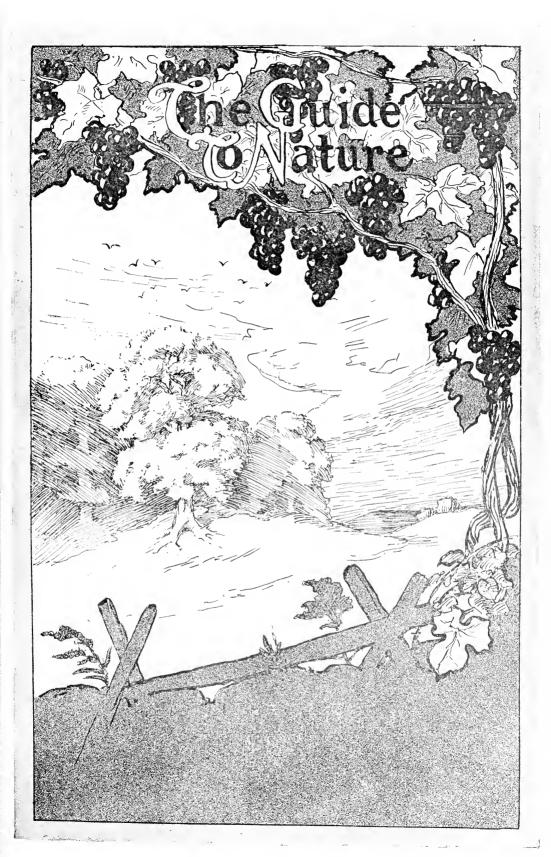
As a by-product of the important studies on human nutrition now being carried on at the Connecticut Agricultural Experiment Station, it appears that rats which are stunted during their growth by insufficient food do actually, as a result, live longer than those that are normally developed, and produce young later in life. The young, moreover, though born after normal rats cease to breed, were as vigorous and healthy as others.

# Please remember this educational uplifting work in making your will.

## Form of Bequest to the Association

I hereby give and bequeath to The Agassiz Association, an incorporated association, having its principal executive office at ArcAdiA, in Sound Beach,

in the town of Greenwich, Connecticut, the sum of \_\_\_\_\_dollars



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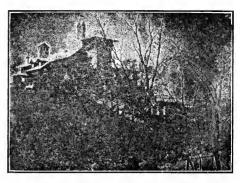
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(From an Editorial in "The Popular Science Monthly.")

"The most desirable institutions for scientific work would probably be comparatively small laboratories conducted by the scientific men who work in them. . . . . . It would be well if such institutions were endowed by the rich, still better if they were supported by a state or community."

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One-piece pajamas have come to be favorite sleeping garments. These are thoroughly comfortable and satisfactory to wear while also they are new and fashionable. They are so simple that they require no special skill or ability for the making and the older girls will be glad of that fact for they can run them up in a short space of time. Crepe de chine and handkerchief lawn are favorite materials fine hatiste and nainsook always are charming time. Crepe de chine and handkerchiet lawn are tavorite materials, fine batiste and nainsook always are charming and just now underwear is being made of fine cotton voile. The body portion and trousers are cut together, as indicated in the back view, and you can leave the trousers open or gather into bands and finish them with frills. Here, stitched edges make the finish but, if you like a daintier effect, you could scallop the collar, the sleeves and the upper edges of the pockets—perhaps the beit also.

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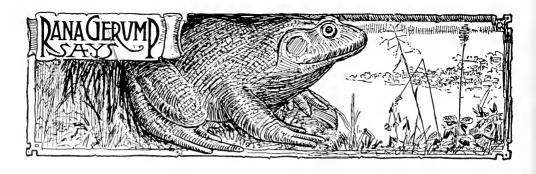
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## A Local Department.

# A Horticultural as well as Military Captain.

Captain Allan F. Kitchel of Sound Beach is the leader of the Home Guards and also leader in another form of service for his country in that he has developed and cultivated a garden that the editor of this magazine believes to



CAPTAIN ALLAN F. KITCHEL AND GIANT BEANS.

be the best in this region. Think of beans covering poles twelve feet high with about six extra feet of vine overhanging—a total of eighteen feet, with many things in similar proportions. Few gardens show a more luxuriant growth of potatoes, tomatoes and the other common crops of the amateur gardener. It is not necessary to specialize because the whole is always known by a fair sample. The accompanying illustration showing Captain Kitchel standing among his pole beans is that fair sample. It represents a garden that has produced a growth which is not all vines but would be difficult to ex-Such things do not come by chance. When Captain Kitchel undertakes a project he does it well. For example, he did his military work at Plattsburg so well that all of us in Sound Beach recognized the justice of the election when the Home Guards made him their Captain. He is a thorough, whole-hearted patriot, and is cordially supplemented and aided in all his endeavors by his energetic and equally patriotic wife. We rather suspect that this magnificent garden is a partnership affair. The Captain may have devoted more than half the energy needed to make it a vegetable garden but we feel sure that Mrs. Kitchel put her capable mind and her accomplished hands on the aesthetic part.

The garden of flowers though not extensive is, in its alluring arrangement its paths of luxurant growth, an exquisite gem. The flowers in the canoe, and the canoe surrounded by picturesque rocks, are more than appropriate for the ornamentation of a home on the shore of Long Island Sound. They are emblematic. The accompanying illus-

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tration shows Captain and Mrs. Kitchel sitting on the edge of that canoe and thinking pleasant thoughts as they ought to do in such pleasant surroundings. In one end of this rock-bound vessel is a luxuriant growth of purple white and lemon verbenas. Through the middle marches a regiment of the deliciously fragrant heliotrope, while the stern is filled and adorned by pink begonias.

Conspicuous in the center of the garden is a gorgeous display of spiderwort (*Cleome*). Scattered about are beautiful patches of phlox, pink and white. zinnia, mignonette with other beautiful flowering plants that make the garden an altogether delightful place.

Like altar fires above the green,
The lilies from our lattice seen.
—Emma Peirce.

A Thorough Nature Student.

Miss Holden had recently taken the position as governess in the Weaver family and had just returned home with the children after enjoying a long walk in the country. Little Madeline approached her teacher and confided:

"I ate a worm when I was out this afternoon. Miss Holden"

With grave anxiety Miss Holden, thinking perhaps the child had really done such a thing, talked to her vehemently, explaining the undesirability of young worms as an article of diet. Then, looking on the funny side, the governess went on in a softer manner:

"And just think, dear, how dreadfully the mother worm felt to have her little baby eaten up."

"Oh, I ate she's muvver, too," returned the little miss in a triumphant

manner.



THINKING PLEASANT THOUGHTS ON A ROCK-RIMMED CANOE.

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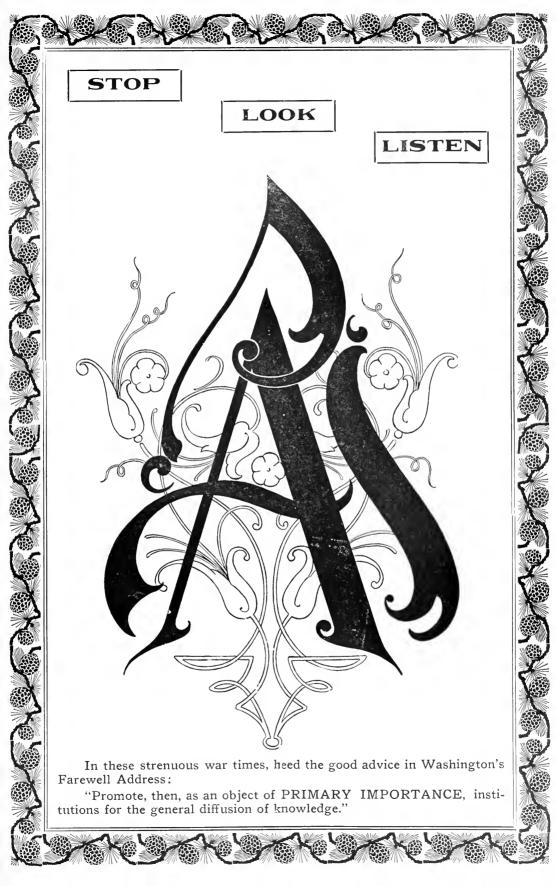
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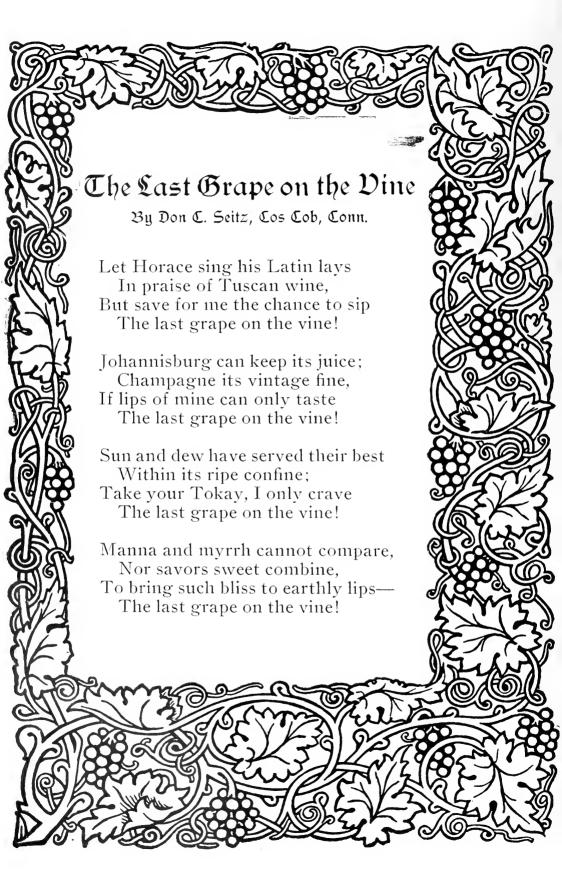
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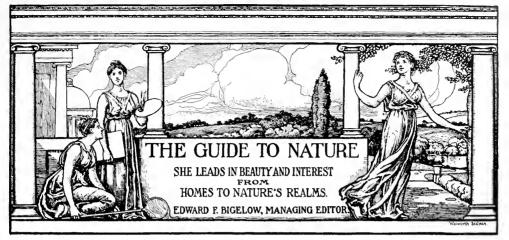
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Volume X

OCTOBER, 1917

Number 5

# Experiments in Grape Growing.

By Edward F. Bigelow, ArcAdiA, Sound Beach Connecticut.

The history of the early settlers' attempts at grape growing in this country recalls the pathos of the early attempts at inventing the typewriter, in that all these experiments show the thick-headedness of human beings, and how difficult it has been for the race to learn some of the simplest things. All the histories of the invention of the typewriter agree that the final achievement was delayed for nearly a hundred vears because no inventor could disabuse his mind of the notion that the keyboard must be like that of the piano with keys black and white and similarly arranged.

For more than two hundred years settlers in the eastern part of the United States sacrificed an enormous amount of time and money on account of their thirst for wine. Vineyard after vineyard was established with the Vitis vinifera, the wine grape of France. Little was heard of grape growing east of the Rockies so long as the experimenters persisted with this impossible Vitis vinifera; that is, in trying to make the wine grape succeed. It has succeeded in only one place in this country east of the Rockies. Louisiana,

when owned by France, grew grapes and made wine in such quantities that the French government forbade wine grape growing in the colony. But in New England and the Middle States the French grapevine is entirely out of place. The history of these experiments is one long series of disappointment after disappointment and tragedy after tragedy, vet with what commendable zeal did those early experimenters struggle with the inevitable fail-Nicholas Longworth of Cincinnati, Ohio, experimented with European grapes for forty years and concluded in 1846 that it is impossible to grow foreign grapes in America. He obtained more than fifteen thousand plants from abroad and went to enormous expense in trenching the land with a special form of drainage, enriching it with soil and with sand even three feet deep. He planted a great variety of foreign wine grapes. Every one failed; not a single plant was left in his vineyards. He then came to the correct conclusion that grape growing, especially in the eastern part of the United States, must depend on the cultivation of native grapes alone and on the raising of new varieties from their seed. But in sharp contrast to this is the success of the French grapes in California. There are occasionally some amateurs in Eastern United States, even nowadays, who have been able to grow one or more varieties of roots, and it is probable that in no distant time all California vines will be grown on native roots. The really wonderful success of the *Vitis vinifera* west of the great continental divide makes all the more remarkable the fact that in no place east of the divide



Cut by courtesy of "The Scientific Monthly."

the old world grape out of doors with a fair degree of success in specially favored locations, but these have always been by the amateur for experimental purposes, never in the commercial vineyard. The repeated failures, without a single real success, serve to prove the uselessness of trying to grow foreign grapes in eastern America. The experiments have been tantalizing because for a year or two these foreign grapevines will grow with a fair amount of promise, and then become diseased with finally nothing left but dead vines and an abandoned vineyard. It is only in the regions west of the Rocky Mountains, and more particularly in California, that the varieties of vinifera, the foreign grape, are successfully grown in America. The great viti-cultural interests of the far West are founded upon the success of this one species. Native grapes can be grown in California, but for no purpose can they compete with the Vitis vinifera. It is however an interesting fact that even in California the foreign grapes grow best upon American will its varieties thrive. In the early history of this country it seems that in the eastern part of the United States none thought of grapes for food. Wine only was wanted. The hard working, frugal Puritans cared comparatively little for even the wild grapes for food. They were not so fond of wine as were the Southerners, nor did they have so much time and so many facilities for experimenting as had the rich southern planters. That accounts for some of the success in the far South. The New Englanders had to struggle to obtain the necessities of life. It is an interesting fact that the New England people were fond of rum while Southerners preferred wine. Yet all the writers on the resources of the New England colonies mention grapes. Governor Edward Winslow, writing in 1621 of the country in which the Puritans had found a home, says, "Here are grapes. white and red and very sweet and strong also." He seems to have been one of the first to become impressed with the possibility of grape growing in New England. The Eighteenth

Century in particular seems to have had the least interest in grape growing from the wild American grapes. In the literature of that century there are fewer references to the possibility of successful grape culture than there are in the Seventeenth. This is probably due to the fact that the experiments with foreign grapes had failed, and it seems never to have dawned on any one that the failure of these foreign grapes argued well for the success of our native species. One can but pause again to philosophize on the obtuseness of mankind. Here time and money had for two hundred years been spent in vain in trying to grow foreign grapes, yet the woods and fields were full of native grapes. What in heaven's name, what in the name of common sense, was the trouble with them? Grape growing in the Eastern United States may be summed up in one word 'failure,' until the Honorable Ephriam W. Bull set up an entirely new landmark when he developed American grape culture. The Concord grape is first recorded in 1852 by the Massachusetts Horticultural Society as a seedling exhibited by E. W. Bull. Its history reads like a romance. At present it is used almost exclusively in the great Chautaugua grape growing belt of New York for the making of grape juice and is grown for the table everywhere in the fields and gardens. From it have been obtained a considerable number of valuable varieties of American grapes, including the Worden, the Early Moore, the Pocklington, the Martha and the Cottage. The Concord succeeds on a greater diversity of soil than any other variety. In the Chautauqua grape region there are six different types of soil on which grapes are grown and on each the Concord is the leading variety. As Horace Greely said, the Concord is preeminently "the grape for the millions." It can be produced so cheaply that no other can compete with it in the markets. Nearly all grape juice that may be purchased almost anywhere in the country at the present time is made from the Concord grapes.

The seed of a wild grape was planted in the field in 1843 by E W. Bull of Concord, Massachusetts. It bore fruit

Near the place where this in 1840. seedling was grown was a Catawba. The wild vine was exposed to crossfertilization. From this came the seedling named the Concord. Here is circumstantial evidence that the Concord contains Catawba blood. From the time when the Concord was first placed on the market, its success has been phenomenal. Nothing else in all the history of grape culture has equaled it. Ephraim W. Bull was born in 1805 and died in 1895. His ninety years were spent in the quiet of his Concord home, and he would have remained unknown by others than his neighbors. who loved and honored him, had it not been for his fortunate discovery of the Concord grape. But, alas, the sarcasm of events is such that the grape which has added immensely to the wealth of this nation brought to its originator scarcely a year's competence. one that eats a grape should cherish a kindly thought for Mr. Bull. The Concord, while it is so successful, vet has many imperfections as a grape. But there is compensation for these in the fact that it grows in enormous quantities anywhere and everywhere. Many things might be said in criticism of the Concord. It has faults but it has earned its phenomenal success by its astonishing prolificness in production

In really high quality for the table the standard of all American grapes is the Delaware. It is undoubtedly the grape par excellence. Its introduction raised the standard of quality of our viticulture to that of the Old World. There is no variety of *l'itis vinifera* more richly or more delicately flavored, or with a more delicious fragrance, than the Delaware. Next to the Concord it undoubtedly is our most popular grape for garden, vineyard or wine press. Contrary to general supposition it has nothing to do with the state of Delaware, but originated in the little town of Delaware in Ohio, and was first brought to notice by a local paper of that town in 1849. It immediately attracted attention and the horticultural journals were filled with conflicting accounts of its history and with discussions of its botany, and in 1856 it was placed on the fruit catalogue of the American Pomological Society. There



THE EDITOR OF THIS MAGAZINE COPYING THE INSCRIPTION ON THE BULL MONUMENT.

\*

## EPHRAIM WALES BULL

PLANTED SEEDS OF A
WILD LABRUSCA GRAPE
FOUND GROWING ON
THIS HILLSIDE
WHICH,
AFTER THREE
GENERATIONS,
THROUGH HIS WORK
AND WISDOM
BECAME
IN THIS GARDEN
IN SEPTEMBER, 1849
THE
CONCORD GRAPE

is still some difference of opinion as to its botanical status, but no one doubts its good qualities. It is a high grade grape for wine making, yet on account of its smaller amount of fruitage it can never compete with the Concord. the table grape, it is undoubtedly the best, and as such commands a premium in all markets, sometimes selling for double the price of the Concord. Delaware seems to be the result of a freak of nature, yet it may have been produced by careful experimenting. Next to Mr. Bull among the great experimenters of the country should be placed Mr. Edward S. Rogers of Saproduced Massachusetts, who forty-five seedlings known as Rogers's hybrids. He was a diligent experimenter, but was evidently regardless of his own interests. He gave away his seedlings freely to any inquiring friends. It is a curious fact that in every one of the forty-five seedlings that he produced the standard is high. have been various attempts at explaining the almost uniform success of almost all his vines, but it is generally acknowledged to be due to his skill in selecting the parent vines, and in liberally supplying pollen in cross-fertili-But these are only surmises: no one knows exactly how he achieved his success.

Raisins are not made from American grapes; no kind at least that will compete commercially with those in the market, though some maintain that the Indians of America made raisins from wild grapes. California has now become the greatest of the world's raisin producing regions, the climate being almost perfectly adapted to the industry. So to sum up: the Vitis vinifera succeeds well in California for wine and raisins; the Concord is the big producer in the Eastern United States for grape juice, and is fairly well esteemed as a table grape; the Delaware is undoubtedly the best in the United States for the table.

For valuable suggestions in the preparation of this article we are indebted to "The Grapes of New York" by U. P. Hedrick of the New York Agricultural Experiment Station. This book is a large volume of five hundred and sixty-four pages, beautifully illustrated with full page plates in colors.

## Courtesy under Trying Conditions.

Peter Hunt is station master for the New Haven Railroad at Bridgeport. He is a favorite with both the patrons of the road and his fellow employees.

Like most railroad men Mr. Hunt realizes the dangers of taking chances in getting on and off moving trains, and he is always on the lookout for passengers who disregard ordinary safety precautions.

Recently an express train pulled into the Bridgeport station and after discharging and taking on passengers was given the signal to proceed. At this moment a passenger who had evidently been dozing awoke and grabbing his bag rushed to the door of the car. As he started to get off the train he was seen by Mr. Hunt, who motioned him to get back on the car. The passenger started to do this but changed his mind. He jumped off the train and as he did so he fell.

Mr. Hunt was right after him and pulled him up on his feet. Had he not done so, an eye-witness asserts, the passenger would have lost both legs.

The point of this story is the behavior of the two men after the railroad man saved the passenger from a serious accident.

The passenger gave the railroadman a severe and most profane tongue lashing for having motioned him back when he first started to alight.

But Peter Hunt maintained absolute silence, remembering the New Haven's

"Courtesy" principles:

"The railroad officer and employee. above all others, should be courteous because the railroad is a semi-public institution. Those who patronize the railroad expect and should receive courtesy and helpful treatment."

Dark clouds are overspreading all the sky, And yet the woods o'erflow with sunshine bright:

The autumn fairies, passing swiftly by, Have filled them with their radiance overnight.

—Emma Peirce.

## Why Percy's Chicken Hops!

BY E. W. POMEROY, D. D. S., STAMFORD, CONN. Willie Mendoza, the Mexican jumping bean, Crossed the border after swimming the stream.

Willie was a bold jumping bean And hopped about stealthily unseen. A bandit bean, and robber bold In search of trouble and lust of gold. As he hopped the soil of Uncle Sam A song burst forth and thus it ran: "Yo ho-yo ho-and some kerosene! I'm Willie Mendoza the jumping bean. Who'er interferes will get a bump." And by this noble song he sung An old hen's heart was sadly wrung. "Whoe'er could sing a song so sweet Would sure be mighty good to eat. And she sought the singer of this lusty song For Willie her heart did sadly long. At length he hopped into her sight And she swallowed him down with all her

In her throat she felt the beanish bump
And was thereupon seized with a case of
jumps.

She jumped for days upon both legs, And jumped so hard she laid some eggs. Hardly had the eggs been laid When she ceased to hop and felt repaid. But one of the eggs disappeared As along the road it hopped and reared. Apparently Willie was in the egg, For it hopped and jumped like a bandit

It hopped North. South. East and West, And landed finally in Percy's nest.
The nest he set the hen upon,
And there it stayed and hatched anon.
It hatched one day with a loud report.
Willie hopped out and with a snort
Of disgust at the soil of Uncle Sam,
Hopped back to his beanish Mexican land.
But the chicken from the egg that Willie

Has hopped ever since, and that's no joke.

# Poetry Prefaced Peaches.

In The Guide to Nature for July. 1914, we published an article on Idylland, the home of Charles H. Crandall, the farmer-poet, in the northern part



MR. PAUL M. BARROWS.
The real happy farmer.

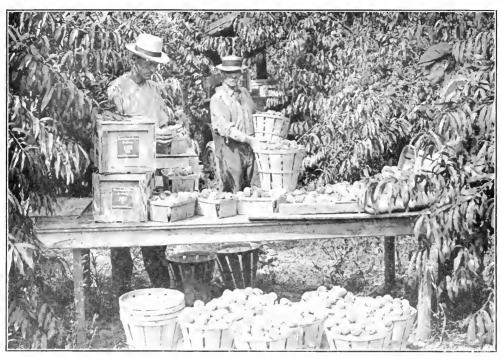
of Stamford, Connecticut. In addition to the usual farm crops that farm was then productive of a prolific crop of poetry, and as typical of that crop we published in our article certain of the poems, namely, "The Forest Cure." "Three Trees," "The Happy Farmer" and "Lean on Your Oars and Rest Awhile." In the point of view of the present these poems have a special poetical significance not then recognized Idylland was afterwards sold to Mr. Paul M. Barrows, and in its development into one of the best fruit farms of the state of Connecticut the emblematic three trees have multiplied into a forest of fruit trees innumerable. Mr Barrows as the happy farmer is surrounded by everything needful to make him the exemplification of the title, for the new homestead has every indication of happiness, prosperity and even indeed of luxurious comfort. While it was not a leaning on the oars that has transformed this poetical farm into a model peach orchard, there was, even in the strenuous labor of brain and hand required by the transformation at least emblematically speaking, a period of resting awhile in the time necessary for the maturing of the forest of fruit trees which now cover the slopes and the summits of the hills of this farm of magnificent views. It has been renamed Mayapple Farm and is being developed for thoroughly patriotic service in that each square foot of the land is planned for the greatest pro-



THE "FARMHOUSE" BESPEAKS PROSPERITY IN PEACHES.

duction at the least expenditure possible.

Mr. Barrows is college trained in everything that pertains to up-to-date farming and forestry and especially in fruit growing. The equipment of Mayapple Farm is ideal. The old barns insect troubles. But care and effort rightly applied bring results. This year is the first year of the larger crops to be expected from this farm. For the first time the peach trees have come into bearing and it is estimated that the crop will total nearly two thousand



MR. BARROWS (AT LEFT) AND ASSISTANTS SORTING PEACHES AND LOADING THEM INTO AN AUTO TRUCK (IN THE BACKGROUND),

have been pulled down and replaced by better and larger ones. The old homestead is still retained as the caretaker's lodge while the new homestead in its palatial beauty crowns the summit of the farm ,the highest elevation for miles around.

Still the work goes on. A large apple orchard has recently been set out but in the waiting for their maturity there is no leaning on the oars. The ground has been utilized to the utmost for corn, and one of the heaviest crops of the state is produced between the rows of thriving young apple trees The remarkable prolificness of this farm is not by chance. The orchards represent industry combined with the best modern knowledge. After every rain the ground is stirred. The weeds The tree trunks are are kept out. treated with the chemicals most approved for the prevention of fungus and

baskets. These are not harvested all at one time but in the different varieties are scattered well over the season from about the middle of September to way into October.

We predict great things for this farm. Mr. Barrows is full of energy and has the requisite knowledge and ample financial facilities for ideal development. At the recent meeting of the Northern Nut Growers Association in Stamford it was voted to accept his offer to establish an experimental nut orchard on his farm. Work on that will begin in the spring and will be followed with the greatest of interest by the nut growers, while the development of all the interests of this farm of manifold efforts will be closely watched by those in the line of the back to nature renaissance as well as those who realize that battles are won by hoes and spades as well as by guns and cannons. There is to the writer a peculiarly emblematic significance in the fact that a farm which for so many years gave to the world its ideal poetry is now transforming into the very poetry of all nature's productions. Some one has said that architecture is frozen poetry. In a similar spirit may we not say that peaches are growing poetry? If so, then in more senses than one poetry has produced peaches for Mr. Barrows must have had well in mind the sentiment of the thing, the ideal or, if you prefer, the prosaic plans before he could accomplish such a thoroughly practical success as is evinced everywhere on Mayapple Farm a farm of poetry, patriotism and peaches.

## Bees That Are Bandits.

"A New Jersey man is accused by his neighbors of keeping a species of bees that, instead of honestly making honey from flower and clover bloom, thievishly plunder the hives of all the working bees in the neighborhood.

"It is asserted that this man, although he has not kept an honest bee in seven years, regularly sells more honey than any other bee man in the

Delaware Valley.

"No doubt these allegations will surprise most people. The bee has been commonly looked upon as incorruptibly honest and as an unvarying model of industry. Indeed, it was from the bee that man first learned that industry and honesty go through this world hand in hand.

"If a story had come from New Jersey, or anywhere else, telling that a gang of men had been making their living, not by work, but by plundering the savings of industrious people, not the slightest surprise would have been excited. Men are a good deal given to that sort of thing everywhere.

"But it appears that bees can suffer degradation as well as men. And, according to the charges made in this case, whiskey entered into the degradation of the bees just as it does into that of men. It is claimed that the bees were fed on 'doped' honey in order to make thieves of them. The drunken bee becomes a bandit. Befuddled with booze, he refuses to work and turns to riotous living.

"We fondly claim great superiority for the human mind over the mind of the bee. But it seems that booze brings them to the same level as far as the more essential qualities are concerned."

\* \* \* \* \*

The foregoing is a clipping from a newspaper. The same item, credited to the editorial page of "The Christian Herald," has appeared in various publications. It should be credited to Munchausen 01 to This is the other writer of fiction. sort of fool stuff that would tend o drive even a prohibitionist to drink. It would, if he knows and appreciates the honeybee. There are plenty of interesting things to be said about honeybees without concocting such trash as this, as there are many arguments in favor of prohibition or at least in favor of temperance.

The facts are that it is not dishonest bees that do the robbing. Bees do not need to be doped with whiskey to make thieves of them. At certain times of the year, when the nectar of the field flowers is scarce, any vigorous colony is liable to assume this robbing habit. Bees will sting. A sting was given to them to prevent this robbing, not only on the part of the bees themselves but of bears and human beings. The drunken bee has not become a bandit but what's the use of wasting more words on such a fool article?—E. F. B.

\* \* \* \* \*

The whole thing must have originated in the fertile brain of some newspaper reporter who had no idea of boosting any cause good or bad. He wanted to get a story that would be accepted by the news editor. He tried to write a good story but he failed miserably.

Whiskey would have a tendency to quiet the bees; they would become drowsy and calm; it would not infuriate them; it would not incite them to

rush out into the fields.

Tobacco smoke quiets bees, and so does any other narcotic or similar drug. That the bees might steal honey containing whiskey is altogether possible, even probable, but if they robbed at all it is because they were stealing honey and not because whiskey was in it. The whole thing is as improbable as it is ridiculous.—The A. I. Root Company, Medina, Ohio.

# Enthusiastic Nut Growing.

The Annual Convention of the Northern Nut Growers Association was held at the Hotel Davenport in Stamford. Connecticut, on Wednesday and Thursday, September 5th and 6th. The



FROM LEFT TO RIGHT:

PROFESSOR W. N. HUTT, RALEIGH, NORTH
CAROLINA.

DR. ROPERT T. MORRIS, NEW YORK CITY.
DR. I. H. KELLOGG, PATTLE CREEK, MICHIGAN.

program consisted of the regular business sessions, addresses by various prominent members and outings around Stamford, Greenwich, South Norwalk and Georgetown. It was voted to enlist the interest of the members of The Agassiz Association, the Boy Scouts of America, the Woodcraft League, the Camp Fire Girls and others who may find trees that are productive of edible nuts and will report their location. Dr. Edward F. Bigelow participated in these plans and made several suggestions for enlisting the interest of girls and boys throughout the country.

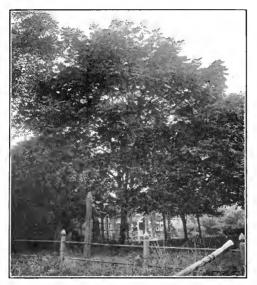
An important discussion was in regard to the scarcity of beechnuts in the North. No one seemed able to explain why in all Connecticut, or at any rate in the greater part of the state, no edible beechnuts are to be found, and it was thought desirable to ascertain from

the various parts of the country where beechnut trees are still growing and whether they are increasing or decreasing in productiveness. This discussion was started by the editor of this magazine who has for several years been conducting extensive experiments and correspondence along these lines. He enlisted the interests of the boys and girls of "St. Nicholas" and later of The Guide to Nature and of "Boys' Life" of the Boy Scouts of America.

The program for these two days of the Convention was interesting but is too long for us to publish in detail, yet the papers that seemed to the editor of greatest importance from a popular point of view may be mentioned. Dr. Robert T. Morris astonished those who are not specialists in nut growing by speaking of the number of pine trees that bear edible nuts.

Next to the cocoanut trees the pines probably furnish a larger standard food supply for various peoples than is furnished by any other group of nut trees After the pines would come chestnuts walnuts, almonds, hazels and others which have been looked upon largely as Recent studies have shown luxuries. that nuts contain the balanced ration to such an extent that they are to be much more largely used for food purposes in the future. Dr. J. H. Kellogg of the Battle Creek, Michigan, Sanitarium, who was present, stated that he purchases pine nuts by the ton for use in his various food preparations. From some thirty species of pine trees which furnish important food supply, Dr. Morris showed nuts of sixteen species in size varying from that of buckwheat up to the size of the bunya-bunya and resembling small, beautiful. white pears. In several parts of the world the nuts of pine trees of different species practically take the place of the potato.

Dr. Kellogg spoke in an interesting way of nuts as a matter of diet. He referred to the increasing cost of meats and to the importance given to them by persons other than himself, then proceeded to tell how nuts could be substituted and are even more nutritious. He conclusively proved by his experience



A JAPANESE WALNUT WITH BUTTERNUT PROGENY AT THE HOME OF A. CARMI BETTS, 74 NEWTOWN AVENUE, NORWALK, CONNCTICUT.

at the Sanitarium and by experiments on wild animals that nuts are not difficult to digest but are on the contrary beneficial when taken at the proper time and in the proper manner. He has experimented on a large number of wild animals and has found that nearly all readily accept nuts instead of meat. There was one exception. The bald-headed eagle refused the substitute. All others, even a wolf that had had nothing to eat except raw meat since it had been taken from the mother readily changed to a diet of nuts. He told an interesting experience with this wolf in that it escaped from the cage captured two chickens, devoured them greedily and died within a few hours. It appears that after the wolf had become accustomed to the nuts, the shock of the meat diet was too great, provided we are justified in attributing the wolf's death to the chickens.

Another pleasing address was by Editor Collingwood of "The Rural New-Yorker." As a humorist, and in his ability to illustrate his remarks by anecdotes, this genial editor would take first premium for skill in pleasing and instructing a general audience. His stories of his boyhood experiences, especially with puzzling problems in arithmetic, not only entertained the audience but served as admirable texts on which to suspend his dissertations on nuts which came later in the address.

Mr. F. A. Bartlett of Stamford presented a practical paper on the use of nut trees for shade. He maintained that nut trees not only have the advan-



THE NUT GROWERS AT A BUTTERNUT OFFSPRING OF THE JAPANESE WALNUT.

tage in the food that grows on them but that they are beauful and useful as shade trees. If his contention is correct we wonder why we should ever have any other shade trees around the home or on the roadside when the nut trees afford shade and in addition supply a bountiful store of nutritious food.

Mr. C. A. Reed, the Government expert, showed a number of slides on the screen, illustrating valuable nut trees and nut orchards in different parts of America. There seemed to be a consensus of opinion permeating the meeting to the effect that nut trees, combining the Greek ideal of utility and beauty, would eventually supplant the kinds of trees in New England which are planted for beauty alone, and incidentally bring larger incomes than those received from Connecticut agricultural interests at the present time.

One of the most important of the trees that were visited was the famous English walnut at Milbank, Greenwich This is indeed a giant tree, just fifty years old, and of such special interest that we hope later to publish a photograph and further details of it. The remarkable feature of this Milbank tree is the superior quality of the nuts, most of the English walnuts which are raised in New York and New England rating in second or third class quality with dealers.

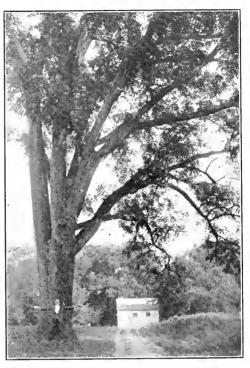
A giant black walnut on the Gregory place on the Danbury Road in the northern part of Norwalk was said to be the largest in the state of Connecti-Even more interesting was the Siebold Japanese walnut on the premises of Mr. A. Carmi Betts of Norwalk. The remarkable fact is that this Japanese walnut with small nuts is surrounded by a numerous progeny that at an early age bear large nuts that resemble the common butternut. The supposition is that the parent tree has been cross-pollinated by butternuts growing in the vicinity, and that the progeny following a law of heredity, have shown the butternut parentage more distinctly than that of the Japanese walnut.

At Dr. William C. Deming's home in Georgetown native black walnuts, butternuts and hickories have been grafted over to superior varieties of walnuts and hickories, much as ordinary apple

and pear stocks are grafted to superior varieties of those fruits.

\* \* \* \* \*

Much money is required for the new and important nut propaganda for the purpose of developing experimental orchards in different parts of the coun-



MR. F. A. BARTLETT AND THE GIANT BLACK WALNUT ON THE GREGORY PLACE ON THE DANBURY ROAD.

try, for the purpose of bringing out the literature of the subject, and for putting the available data already known in the best form for public service. For that reason the Convention chose Stamford for a meeting place this year. In Stamford there are a number of men of means interested in general horticulture, who would be expected to attend the meeting as visitors. Ordinarily the Association looks for about two hundred local visitors, and a lively address of welcome by the mayor of the town in which the Association meets. There is something peculiar about Connecticut psychology. Instead of having two hundred local visitors representing the wealth and public interest of the comwere only about munity, there who attended dozen meeting, although there was a full attendance of members from different

states. The particular object of enlisting local interest failed in Connecticut and for the first time in the history of the Association. One of the friends of a prominent worker in the Association said in this connection, "That's Connecticut as I know it."

## Prize Offers for Nuts.

The Northern Nut Growers Association wishes to interest the Boy Scouts the Girl Scouts, the Campfire Girls, the Woodcrafters and similar organizations, in its efforts to find and preserve the valuable native nut trees of America.

For that purpose it offers, through the kindness of one of its members, a special additional prize of five dollars (\$5) to any member of one of these organizations who shall win any one of the Association's prizes. These prizes are as follows:

For a Hazel nut of pure American origin that shall compete with the imported filbert, \$50.00.

For a Shagbark Hickory better than those now being propagated, \$25.00.

For a Pecan better than those now being propagated, \$10.00.

For a better Black Walnut, \$10.00. For a Beechnut worthy of propagation, \$10.00.

For a blight resistant American Chestnut, \$15.00.

For the best butternut sent in, \$5.00 second, \$3; third, \$2; and five prizes of \$1 each.

Also prizes of from \$1 to \$5 will be awarded to the sender of any of the following nuts that shall be deemed by the judges worthy of propagation: the western shellbark, pignut, mocker nut or other hickory, Japanese walnut, pine nut, almond, English walnut or hybrids.

Mere size of nut is not of greatest value, except, perhaps, with the hazel Before size come cleavage, or the ease with which the meat may be taken from the shell, plumpness, richness and flavor of kernel, and productiveness of tree. Any nut, even a small one, if it ranks high in these three points, may be of value.

Send at least twelve nuts from each tree, pack them securely in a box or bag, address them to Dr. Deming

Secretary Northern Nut Growers Association, Georgetown, Connecticut. and be sure to put your name and address on a slip of paper inside the package. The secretary will acknowledge the receipt of each specimen and write his opinion of the merit of the nut.

Mark the tree so as to be sure you

can identify it.

Valuable nuts are named after the sender and the name goes on permanent record.

Senders of good nuts will find opportunity to sell cuttings from the tree at the usual rate of five cents a foot.

Prize winners must furnish one lot of scions, or cuttings, for experimental propagation, at the request of the Association.

All packages must bear postmark not

later than December 31.

Our valuable native nut trees are dying or being cut down every year and so being lost to the world. If you can help us find them first we can have scions grafted from them on young trees and so the nut may be grown forever just as we have found and saved most of our native fruits, the Baldwin apple or the Bartlett pear, which would have been lost forever if some one had not had the wit to graft scions from the original tree. Trees do not come true from seeds.

The Northern Nut Growers Association, whose interests as a body are entirely educational, experimental and scientific, appeals to the patriotic spirit of the young people of America to help us save the precious possession of our native nut trees.

We sometimes get nearer to God in proportion as we get—far from men.—Henry Ward Beecher.

The English, confronted with a serious food shortage, are waking up to the loss caused by various destructive creatures. It is calculated that the house sparrow alone costs the British Isles no less than \$40,000,000 each year, with twice as much more to the discredit of the starling and the blackbird together. Rats are said to destroy about \$75,000,000 worth of property annually, and altogether the loss is not far from \$200,000,000.



All communications for this department should be sent to the Department Editor, Mr. Harry G. Higbee, 13 Austin Street, Hyde Park, Massashusetts. Items, articles and photographs in this department not otherwise credited are by the Department Editor.

## Making a Nest for a Wren.

BY MISS HATTIE REYNOLDS, UPPER FALLS, MARYLAND.

Once there was a wren that had the odd but appropriate name of "Bubbles," because he seemed to be the incarnation of overflowing joy and irrepressible song, like the rainbow-hued bubbles that arise from a spring of fast flowing water to sparkle in the sunshine. There is such a spring. It is ealled Rock Creek and is the admiration of two counties. A small river of the same name flows from it. The water rushes forth like a fountain from a crevice in a rock under a majestic tulip tree. It tumbles down the steep hillside with five hundred gallons of water a day, in a little waterfall full of bubbles and wreaths of foam, and goes leaping and sparkling to hide itself among the ferns and the wild flowers It is like a merry child running out of a dark schoolroom into the beautiful playhouse of out of doors—joyous. noisy, free. So Bubbles sings when he comes back in the spring, and every one stops to listen. He is so delighted to pour out that charming solo of histhe spring love song—that he can scarcely stop to eat.

Fortunately little lady wren is more practical and sensible. After listening patiently to her musical husband, she goes poking about in crannies and holes to find a place in which to build a nest.

What do you think those two silly ones selected? A tomato can on a ledge in an outhouse. They crammed it full of sticks, a quart of sticks, with

no room for the nest as the sticks seemed to go in endways. I found a small wooden box about eight inches. each way and emptied the sticks in it. arranging them with my awkward hands into the form of a nest. When the pair returned, they seemed to be surprised and flew about complaining and looking for the can that I had left on the ledge. The next morning there were some sticks in it again, so I took it away. Then they built in the box. Did they know those sticks over which they had worked so hard? thoughts were in their minds when they made the delicate part of the nest that no hand of man has been able to build? There they raised four little ones that fortunately got away without being destroyed by the cat, that arch enemy of bird life.

## A Quail's Nest Under a Beehive.

Atlantic, Iowa.

To the Editor:
I enclose a photograph of a quail's



THE QUAIL NEST UNDER THE BEEHIVE.

nest under a beehive that I took when visiting the queen breeding apiary of Mr. Ben G. Davis at Spring Hill, Tennessee. Mr. Davis was at work about the apiary nearly every day, yet this picture shows how familiarly the quail would come about our homes if they were encouraged to do so. We formerly had a fine covey of these birds which came into our dooryard and fed about the barn lot with the hens. Unfortunately there are hunters here who have little regard for friendly birds, and our last quail has fallen a victim.

Cordially yours, Frank C. Pellett.

## A Pet Blue Jay.

Atlantic, Iowa.

To the Editor:

I enclose a picture of Miss Austa Durkee, a primary teacher in this city, and a pet blue jay which I think will interest you. The bird was so tame



HER PET BLUE JAY.

that it would come at call, and would without fear alight on the head or hand of any visitor. Miss Durkee has done much to interest the children of her school in the study of nature and to make them friendly toward the birds.

Very truly yours, Frank C. Pellett.

Mr. Samuel Alexander, an old-time amateur botanist, lately dead at the age of eighty, was one of the first persons in this country to advocate and assist in systematic tree planting and conservation. His active study of plants continued to the end of his life.

## Dr. Pomeroy and Mr. Walton.

Stamford, Connecticut.

To the Editor:

THE GUIDE TO NATURE is always full of interest, but of especial interest to me was the article on Mr. Mason A. Walton in the August number. I had the pleasure of knowing Mr. Walton intimately, and of spending many happy hours in his charming company. His knowledge of the little wild creatures of the woods was equalled only by his love of them, which might also be said of the flowers that he cultivated in the garden near his cabin. Though wonderfully interesting in conversation, there was always a reticence in his manner. I felt that there had been a shadow in his life, though he never referred to the past, and however black the shadow, the sunshine of his simple life and his genial, kindly nature radiated from him and was reflected on all who came into his presence.

Of the many things that might be said to illustrate the courtesy as well as the kindness of heart that characterized him, I will relate a single incident.

In company with several young men and a brace of fine hunting dogs, the writer started out one night to hunt the wilv raccoon. Intending to keep as far as possible from the "Hermit's Woods," we drove several miles north toward Essex, turning our dogs loose at a point that we considered remote from any creature which Mr. Walton might know and love. But the wavs of raccoons and dogs may not always be predicted. Wearily we tramped until midnight with no sign of a raccoon-Then suddenly the dogs were off on a scent. There followed an hour or more of working up an 'old trail' then away to the south, the baying of the dogs faintly audible. Hastening on, we came at length to a ledge on which stood two huge trees. In one of them the dogs had the coon. While we were debating our next move, we heard footsteps, and presently the hermit appeared on the scene. He greeted us quietly, without a trace of excitement and asked if we had a coon up the tree I replied, Yankee fashion, by asking if we were near his cabin. He informed us that we were, but very considerately asked where we started the coon

The writer, undertaking to speak for all, said, "In the Essex woods, but when any coon or any other creature flees to your back dooryard for safety, he surely finds it when I am on his trail." Though the trees in which the raccoon had taken refuge were within two hundred feet of the hermit's cabin, he replied, "It is true that I have some pets about here, but it is also true that there are raccoons in the Essex woods. If you have chased one of them over here you have a right to go up the tree and get it." "We may have the right," the spokesman answered, "but we do not care to exercise that right and possibly shoot a pet coon. If you will show the boys your sleeping porch, we will consider ourselves rewarded."

A few steps brought us to the big pines under which in a hammock suspended between two of them Mr. Walton had been sleeping when awakened by the dogs.

DR. W. H. Pomeroy.

## Knew How to Get What She Wanted.

Audenried, Pennsylvania.

To the Editor:

I have a pair of hens which last winter and early this spring had the range of the yard and were unusually tame. One morning they found themselves in a wire pen, and when I looked in at noon and expressed my satisfaction at seeing them out of the garden, the gray hen squatted down much like an old chick and with motion of the head and beak and considerable clucking seemed to say, "Why don't you put some straw in the nests? I want to lay." I took the hint and put the straw in one nest, then went to dinner. When I looked in the nest a half hour later. I found there a nice brown egg. actually believe the hen was indicating her wish for straw as her conduct was very unusual. I can pick up this hen at any time. C. D. Romig.

C. D. Romes

#### Forget me-nots.

"Forget-me-not" they breathe in blue, "Forget-me-not the season through: For to each gift of flowers blent, We add the touch of sentiment."

-Emma Peirce.

## Bird Confidence.

Audenried, Pennsylvania.

To the Editor:

While driving an automobile this summer through the country, on a trip in the direction of the Delaware Water Gap, I noticed a pigeon feeding in the middle of the road where it remained and allowed me to pass above it, as I did without disturbing or harming it. Another machine just in front of mine did the same thing. The bird did not seem at all concerned.

This season I have also noticed a flicker raising a family in a dead tree beside a busy railroad track and within a hundred yards of a noisy coal breaker where many boys are employed. This must be largely the result of the protection that birds have had in the past few years. Ordinarily a flicker is a shy bird.

C. D. ROMG.

#### The First Frost.

BY CHARLES NEVERS HOLMES, NEWTON, MASSA-CHUSETTS.

No more the cricket chauts!—no butterfly Like wingèd fairy flutters gaily by, No fragrant flower scents the midday air.

A sudden blight lies lightly ev'rywhere, No blithesome chorus wakes at early dawn.

The virgin verdure fades from lea and lawn, And with each fickle breath of chilly breeze Some more sere leaves fall slowly from the trees.

## Music Without Charm.

The shopman had been using a vast amount of persuasion in trying to induce the visitor to buy the gramophone

"Latest and most wonderful instrument, sir," he remarked: "I've a blank disc here if you care to hear yourself."

The visitor's eves brightened.

"I play the flute a little," he replied producing an instrument. "If you don't mind—"

The shopman did not, and the disc was soon indented with something that only a sleuth from Scotland Yard could have recognized as "Alice Where Art Thou?"

"Is that really me?" asked the flutist when his performance was repeated by the instrument.

"That's you, exactly, sir. Will you

buy the gramophone, sir?"

"No," was the reply: "I'll sell the flute, though."

## The Heavens in October.

By Professor Eric Doolittle of the University of Pennsylvania.

For many months the student of the heavens has had but little opportunity to spend his early evenings in the observation of our most interesting sister worlds which revolve about our sun. Occasionally he may have examined the brilliant little Mercury when it emerg-

During the evenings of the present month, however, the two most brilliant worlds of all are seen in the evening heavens. When the observer has studied the beautiful, silvery Venus until it has sunk below the horizon in the southwest he may turn to the golden



Figure 1. The Constellations at 9 P. M. October 1. (If facing south, hold the map upright. If facing east hold East below. If facing west, hold West below. If facing north, hold map inverted.)

ed for a short time into the twilight glow, and during the past several weeks Venus has also been steadily but very slowly emerging from the sun's rays, but none of the other planets could be studied to advantage except after midnight and during the early morning hours. Jupiter with its interesting retinue of moons which will then be climbing the heavens in the northeast. These two planets will nightly come into more favorable positions for observation for many weeks, and to add to the beauty of our autumn evenings.

We this month see for the first time

entering our evening heavens the wonderful constellation Taurus, with its striking star figures of the Hyades and Pleiades, and this is but the leader of the brilliant winter train of stars

### The Planets in October.

Mercury attains its greatest distance west of the sun on October 4; at this time it rises almost at the east point of the horizon about one and one-half hours before sunrise. It is only on the mornings for a few days preceding and following this date that the planet can be seen with the naked eye, though the possessor of a small telescope which is provided with setting circles can observe it during the daytime, especially if precautions are taken to screen the object glass from direct sunlight.

All of the planets revolve about the sun in paths which are not exact circles so that at some times they are nearer the sun than at others, but the difference with Mercury is far greater than with any of the other worlds. When this little planet is nearest the sun it is but twenty-eight millions of miles distant from that source of intense heat, but when it is at the most remote part of its orbit it is no less than forty-four millions of miles away. The former position is called Perihelion, and when it is at this point Mercury receives two and one-third times as much light and heat as when it is most distant. When it is considered that the planet receives on the average seven times as much light and heat as our earth, it is evident that its fluctuations of temperature must be most remarkable. Doubtless this alone would make it quite impossible for living beings such as are found on our earth to exist there, and this unfavorable condition must continue for many long ages until our sun has become cooler. Mercury passes Perihelion on the third of this month at TA. M.

Venus is seen shining far in the southwest for two hours after sunset on October 1 and this time is increased to 2 hrs. 30 min. by the end of the month. The planet has long since passed the point of its great orbit which is far beyond the sun, and it would emerge from the sun's rays far more rapidly did not its motion also carry it rapidly southward among the stars

By October 31 it will be no less than twenty-six degrees south of the equator of the sky, a point far more southerly than is ever reached by our sun. Consequently it will be found far south of the west point of the horizon. On October 1 Venus shines with sixty-three times the brightness of a first magnitude star, while by October 31, on account of its decreasing distance from us, it will have become no less than ninety-three times as bright. It will be found a beautiful object in the telescope, looking as the moon when two or three days past the first quarter.

On the evening of October 18 the narrow crescent of the new moon will be seen a little to the right of Venus; both on this and the following evening the two objects will form a beautiful figure in the southwestern sky. It will be noticed that the moon is steadily drawing nearer the planet, but unfortunately the two bodies will not be near est together until 2 hrs. 57 min. P. M (Eastern Standard Time), when they cannot be seen (except in the telescope) on account of daylight. The present approach will be a very close one and many observers south of twenty-six degrees north latitude on the earth will see the planet hidden by the moon. On this same evening the reddish Antares is seen two degrees south of the silvery Venus; the contrast both in color and brightness will be very striking.

Mars will move from Cancer into Leo during October: its rising precedes the rising of the sun by about four hours on October 1st and by about five hours on October 31st; consequently it is high in the eastern heavens during hours of the early morning. Though not yet in the most favorable position for observation, the planet is rapidly approaching the earth, and its increase in brightness during the month will be very noticeable. On the morning of October 20 Mars will be found one degree north of the beautiful double star, Regulus, and the two objects may then be seen together in the field of a small telescope.

The most striking object now in our evening heavens and the most satisfactory one for observation is undoubtedly the planet Jupiter. This rises at 8 hrs. 40 min. P. M. on October 1, and so early as 6 hrs. 40 min. by October 31.

With its retinue of bright moons, its wonderful and ever-changing markings and its rapid rotation, its observation is a source of never failing pleasure Especially interesting phenomena of its satellites may be seen on October 8, 14, 21, 23 and 26.

Saturn is moving eastward and southward in Cancer, a little to the left of the Praesepe. On October 1 at 7 P. M., Mars in its eastward motion will pass forty minutes to the north of Saturn, so that on this evening both of these very interesting worlds whose appearances are so strikingly contrasted may be seen together in the field of the telescope.

\* \* \* \* \* \*

### The New Star.

The nebula within whose boundaries a new star recently appeared (as was described in the article of last month) is a faint, spiral nebula lying in the borders of the constellation Cepheus, at the point A of Figure 1. A photograph of it with many of its neighboring stars

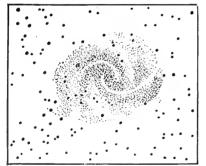


Figure 2. The Spiral Nebula within which a new star appeared.

is shown in Figure 2. As the new star is but of the fourteenth magnitude, it is far too faint to be seen with a small telescope, but faint as it is, its sudden appearance is of the utmost philosophic interest.

When the complete records are examined it is found that no less than six new stars have been known to appear within the borders of spiral nebulas, the brightest of which was the star which in 1885 flashed out in the Great Nebula of Andromeda. Some astronomers think it probable that the spiral nebulas are not true nebulous clouds at all but that each is a univese of stars, more or less like our own Milky Way universe, but at an immense distance

away. That a single new star might appear in such a part of our universe that it would be seen by us in a line with the distant nebula and so be mistaken for a part of it, might not be surprising, but such an explanation could hardly be adduced to account for the appearance of no less than six of these objects.

The conclusion seems unavoidable that the new stars are actually within and connected with the nebulas themselves. If this is so, it would seem that the nebulas cannot be so immeasurably remote as some suppose, for were this the case, a star, even though it exceeded by millions of times the brightness of the largest known suns of our universe, would be too far away to be visible to us. Yet though this conclusion is certainly the most probable one, we cannot be perfectly sure, even of this. for it is just possible that in those distant universes (if they are such) there may be action and changes on a scale more stupendous than any hitherto witnessed by us.

# Visible Occulations of Algol for the Season of 1917-1918.

BY WILLIAM A. MASON, IN THE MONTHLY EVENING SKY MAP.

The following table gives the visible minima of the occultations of the variable star Algol for the season of 1917-1918. The time given is the middle of the occultation, which begins five hours earlier and lasts five hours later than the hours indicated.

The ephemeris has been corrected by the accumulated acceleration of the star's former period of revolution, which now brings the minima one hour earlier than the standard tables.

The time given is U. S. Eastern Standard Time. Algol is visible evenings in the northeast in the Fall, overhead in the Winter, and in the northwest in March and April.

| west in March and April. |
|--------------------------|
| October 2                |
| October 17 1:15 A. M.    |
| October 19 10:05 P. M.   |
| October 22 6:55 P. M.    |
| November 8               |
| November 11 8:40 P. M.   |
| November 14 5:30 P. M.   |
| November 29 1:30 A. M.   |
| December 1               |

| December 4 7:10 P. M.  |
|------------------------|
| December 22            |
| December 22 0:00 A. M. |
| December 24 8:50 P. M. |
| December 27 5:40 P. M. |
| January 11 1:45 A. M.  |
| January 13 10:35 P. M. |
| January 16 7:25 P. M.  |
| February 3 0:15 A. M.  |
| February 5 9:05 P. M.  |
| February 8 5:55 P. M.  |
| February 23 2:00 A. M. |
| February 27            |
| February 25 10:50 P. M |
| February 28            |
| March 18 0:30 A. M     |
| March 20 9:20 P. M.    |
| March 23 6:10 P. M     |
|                        |

### Moonglade.

BY CHARLES NEVERS HOLMES, NEWTON, MASS.

How restful just at eventide, When afterglow is wholly o'er, To stand alone by ocean's side And hear its surf upon the shore, To breathe its breath and feel its might, To see the shroud which o'er it lies, The shapeless ships, the harbor's light, And sparkling stars amid the skies.

When from her darkling couch the moon Serenely rises full and white, And with increasing glory soon Transforms the shodaws of the night; On restless waves like silver shines Her splendor—O transcendent sight!— In surging, scintillating lines

Across the waters of the bight.

Had I been free to spend my life as I chose the study of living nature would assuredly have been my choice It is with fear for the future that I see the majority of young Americans growing up without an interest in the Such density cannot be outdoors. overcome by the most elaborate indoor training. I am immensely interested in The Agassiz Association, if only for its name, which has always been musical to me.—Ella Frances Lynch Founder The National League of Teacher-Mothers, Brvn Mawr, Pennsvlvania.

All across the woodland, under lowering skies.

The glowing tints of Autumn had been sleeping:

There came a shaft of sunlight from out the West, and lo!

The miracle was out they had been keeping.

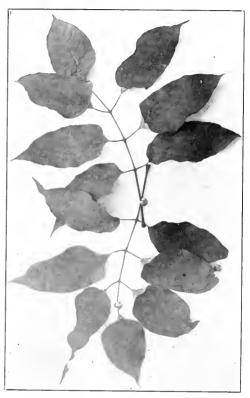
—Emma Peirce.

### Pitcher-leafed Ash.

Princeton, New Jersey.

To the Editor:

I note with pleasure that you have called the attention of the readers of The Guide to Nature to my desire for information regarding the occurrence of pitcher-leafed ash. I enclose here-



NOTE THE "PITCHER" SHAPE.

with a photograph of leaves taken from one of the pedigreed trees which I have grown. Although this is not a very satisfactory photograph it will give you an idea of the peculiar feature of these trees.

Sincerely yours, George H. Shull.

Civilization is surely advancing, although its progress may sometimes seem slow. African traders, who used to supply Uganda with rum, calico, brass wire and beads, are now doing a roaring trade in wrist watches.—The Youth's Companion.

Your magazine is a treasure.—William W. Dean, Stamford, Connecticut.

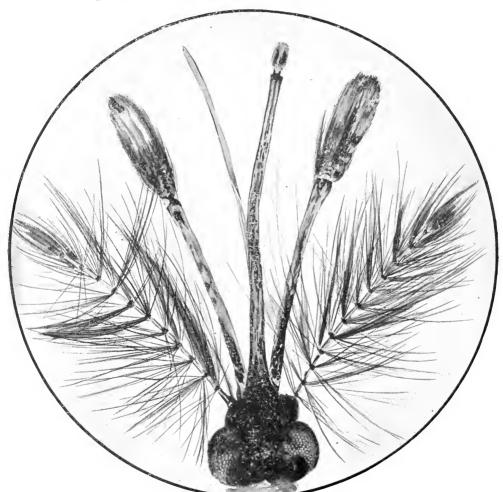


### A Hint and a Suggestion.

BY CLEMENT B. DAVIS, NEW YORK CITY.

To that enviable mortal, the microscopist, everything is "fish that comes to his net." The seeds of the common weeds and vegetables furnish endless

work. A volume might be written on their surprising mechanisms alone the labrum or underlip, for instance, of the larva of the dragon fly. In repose this appendage appears as a simple mask covering the greater part of



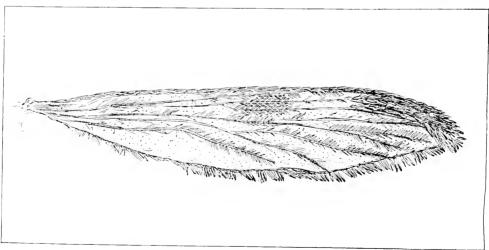
THE AUDITORY HAIRS OF A MOSQUITO.

surprises. The pappus of the flying seeds hold secrets that few of us suspect, while the exhaustless store of beautiful forms, color combinations and mechanisms among the insects alone would furnish material for a life the face, but let some helpless little fish, worm or tadpole wriggle too close and that disguise flies out and back like the click of a camera shutter. That mask is no longer the simple face covering it seemed to be, but it becomes a pair of grappling hooks on the end of a jointed arm which is normally folded under the chin. In the fraction of a twinkling, the victim is drawn to the waiting jaws in fulfillment of its humble destiny.

There is the pretty mechanism of that agile acrobat, the "hominy beater" beetle which, when placed on its back, snaps itself about until it finally lands on its feet. And there is the great hairy mop of a tongue with which the stag beetle laps up the sap that flows from the tender twigs crushed by the huge mandibles.

Even the ubiquitous mosquito holds many beautiful revelations for the microscopist. The two fluffy tufts forming the antennae of the male are well worth your attention. Although these are of so odd a shape scientists tell us that they are organs of hearing. This was suggested as early as 1855. Mayer, in 1874, led by the observations of Hensen, conducted a series of experiments with these beautiful plumose antennae of the male mosquito to show their auditory function. He fastened a mosquito to a microscope slide and then watched the hairs as he sounded tuning forks near-by. When forks producing vibrations of five hundred and twelve per second were sounded. some of the antennal hairs were thrown into violent sympathetic vibra-

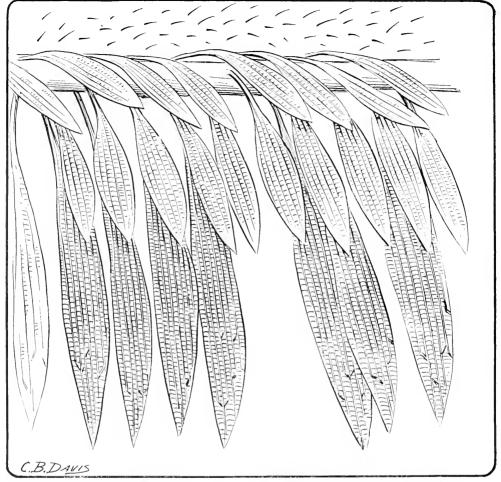
The wings also hold a pretty secret. It is for you to verify or to disprove the existence of a structure that appears to exist on a wing in one of my slides mounted a number of years ago. It is from one of the Anopheles, and its picture shows that butterflies and moths have no monopoly of scales on their wings. The interest, however, centers on the fringe of scales along the hind edge. The next picture shows a portion of this fringe greatly enlarged and carefully drawn. In examining this I was impressed by the apparent insertion of the scales along the edge. This fringe appears to consist of three rows of scales. Those in the bottom row are long. Those in the next row set higher on the membrane, are only about half as long and overlap the first. Those of the third row are still shorter. and overlap the second. The scales in the bottom row are straight, in the second they are slightly convex while in the top row they are decidedly convex. Can this be a beautifully adapted mechanism for labor saving? It will require the careful examination of a number of wings to determine this. If it is found to be a common structure, we can readily see that the down drooping of this fringe on each upstroke of the wing, and its straightening out on each down stroke, each row bracing the next lower like the various pieces



THE SCALES ON THE WING OF A MOSQUITO. The dark markings are produced by closer groupings of the scales.

tion. This is no accidental circumstance. The hum from the wings of the female mosquito produces this same note.

of a laminated vehicle spring, will mean the saving of an enormous amount of energy in the course of a few minutes, when we consider that the



THE SCALES ON THE LOWER EDGE OF THE WING OF ANOPHELES MOSQUITO.

wings make five hundred and twelve strokes a second.

The quest of the truth in this matter will lead to many happy hours in the haunts of this little malarial pest and numberless delightful minutes with the wings under your microscope.

You have the hint. The suggestion is this: Tell us what you find. It is immaterial whether your investigations confirm or disprove what appears to be the structure of the wing on my slide. Your report will be interesting to us who read The Guide to Nature. You have enjoyed the articles in each issue, so why not "do your bit," and help contribute to the enjoyment of the rest of us?

Love of nature costs nothing, and yields 1,000 per cent.

-Emma Peirce.

### From Nothing, Nothing Comes.

Nature—the world I could touch—was folded and filled with myself. I am inclined to believe those philosophers who declare that we know nothing but our own feelings and ideas. That is why, perhaps, many people know so little about what is beyond their short range of experience. They look within themselves—and find nothing! Therefore they conclude that there is nothing outside themselves either.—Helen Keller.

Nature—faint emblem of Omnipotence!

Shaped by His hand—the shadow of His light—

The veil in which He wraps His majesty.—Horace Bushnell.

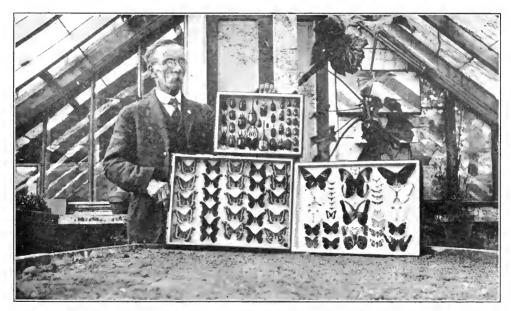


### Seventy-five Thousand Insects.

BY ROBERT C. MILLER, BUTLER, PENNSYL-VANIA.

In the mountains of southwestern Pennsylvania, near Uniontown, a rare variety of beetle has been discovered, over which entomologists have been arguing more or less for several years. The names suggested for it have ranged all the way from plain Cychrus ridingsii to Scaphinotus ridingsii mononga-

While passing a bookseller's window one day, his attention was attracted to a work on our common butterflies. He bought the book, read it, awoke to the possibilities of the subject, equipped himself with a butterfly net and a cvanide jar, and has been at it ever since. He has collected throughout the United States from Maine to California, and has exchanged with collectors in foreign lands, until he has assembled a



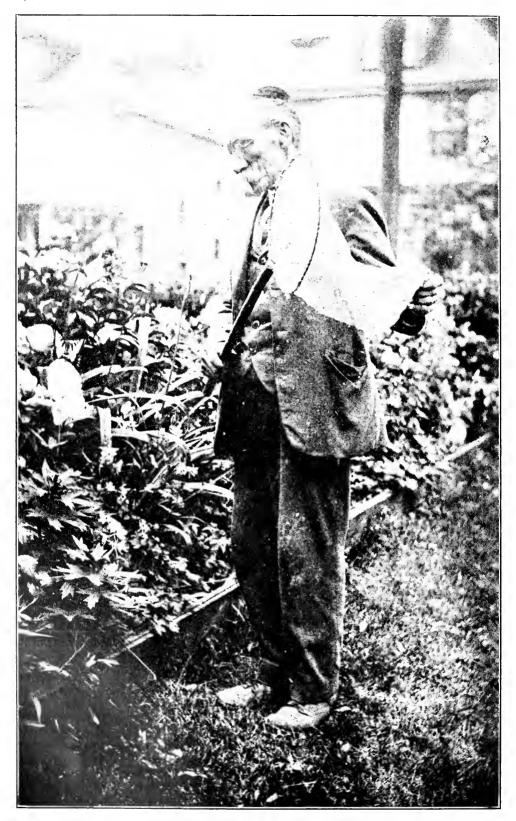
MR, T. N. BROWN AND A PART OF HIS COLLECTION OF HANDSOME MOTHS, BRIGHT-HUED BUTTERFLIES AND HUGE BEETLES FROM THE TROPICS.

helae, and the question is still unsettled. Most of my readers, I suppose, are not interested in this beetle, nor in the discussion concerning it, but I am sure every one will be interested in learning something of Mr. T. N. Brown, the enthusiastic "insect hunter," who has the reputation of being the only successful ones of our northern clime. collector of the Cychrus in this region.

Twenty-four years ago Mr. Brown became interested in insect study.

magnificent collection of more than seventy-five thousand specimens belonging to eighteen thousand different species. His cabinets present a rare display of elegant moths, bright-hued butterflies and huge beetles from the tropics, as well as the more modest Brown is thoroughly informed on every branch of insect study.

I well remember my first acquain-



STALKING THE TIGER SWALLOWTAIL.

tance with Mr. Brown, made when I was a youngster in short trousers. From the time I was seven years old I had had an interest in insects and, using my straw hat in lieu of a butterfly net and cigar boxes for cabinets, I had collected as best I could though in ignorance of the names and habits of my specimens. One day I learned of Mr. Brown and his collections and equipping myself with a box of butterflies as a talisman, I set out on a pilgrimage to his home.

If I had expected any formality I was agreeably disappointed. I found him in the garden, a pleasant, kindly old man, spectacles set awry, a slouch hat on one side of his head, sleeves rolled up and a trowel in his hand. He welcomed me as one after his own heart, encouraged me, provided me with books and allowed me to wander to my heart's content among his collections. The studies first seriously begun there, I have followed with increasing pleasure to the present time and the debt I owe to Mr. Brown is one not likely to be repaid.

Not content in confining himself to one branch of nature study, Mr. Brown has made a study of geology and his collections of ores and semiprecious stones is one to delight the eyes of a student.

When the Uniontown Chapter of The Agassiz Association was organized Mr. Brown became an enthusiastic member. He has made frequent donations to our museum, and has ever been willing to aid the Chapter in every possible way. Under his instruction several of the members have become enthusiastic butterfly hunters.

When not collecting insects, delving for specimens of rock, working among his flowers or helping some student Mr. Brown finds time to paint lifelike color portraits of the butterflies and moths in his collection, and does it so accurately that they have scientific value. One of his butterfly paintings is in the Carnegie Museum at Pittsburgh.

Mr. Brown is one of the old school naturalists, who has loved the outdoors so sincerely as to devote his time to nature study in the days when such pursuits were considered childish if not a sign of mental deficiency. It

is largely owing to the unflagging zeal of such men as he that Mother Nature has come into her own, and the study of insects, stones, birds, fishes and frogs relegated from the realm of child's play to one of the most important of the intellectual pursuits.

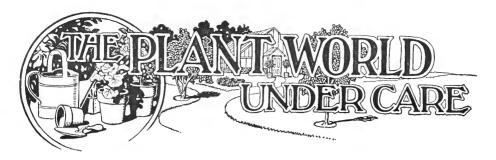
### Fruit Requires the Bees.

Fruit growers are beginning to realize the necessity of bees for the proper fertilizing of fruit bloom, and that the two industries are mutually inter-dependent. If anything, the fruit grower derives much more benefit from the bees than the bee keeper himself. number of years ago the veteran bee keeper and queen breeder, Henry Alley of Massachusetts, now deceased, was obliged to move his bees away, owing to complaints of fruit growers, claiming them to be a nuisance, but after a year or two they were glad to get him hack again, because of so little fruit in proportion to the number of blossoms.

I have in mind an account I read in one of the bee journals of a man in New York State, who bought a farm and set it out to fruit trees, expecting to flood the market with fruit. After a few years' waiting and getting no fruit. he was obliged to sell out to another. The second man thought he had a bonanza but soon found out his mistake and sold. The third buyer was a bee keeper and wanted it as a location for his bees, as there were none around there and at the same time mistrusting the cause of the barrenness of the orchard The result was that the first year he harvested thousands of barrels of the finest fruit ever raised in that section and the orchard has continued to bear since.-Green's Fruit Grower.

The sunset glory fills the woods,
The sunset of the year;
In Summers heat a cool retreat,
Now full of warmth and cheer.
—Emma Peirce.

What is nature? Art thou not the living Government of God? O. Heaven, is it in very deed He then that ever speaks through thee,—that lives and loves in thee, that lives and loves in me?—Carlyle.

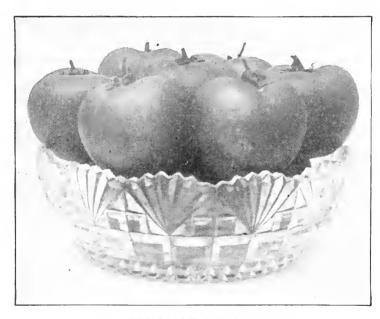


### The Seeds of Potatoes.

In the January, 1916, number of this magazine there was an article by the editor on the seeds of potatoes. That article has attracted widespread attention and in many respects has been misrepresented. It opened with the following statement:

"Thirteen years ago I originated the annual summer school of nature study at the Connecticut Agricultural Colto the fruiting berries of the common potato, he exclaimed, 'All these berries have disappeared from the state. I will give twenty-five dollars for one found within Connecticut.'"

Though that offer was made in a classroom from the oratorical rather than the financial point of view, the experience of the subsequent years proves it. In all that time not one fully developed potato ball has been found in



POTATO SEED BALLS. Natural size

lege, Storrs, Connecticut, and was the director of the first session. One of the members of the staff at that session was Professor Gully, the horticulturist of the college. This expert in garden products made one day an astonishing statement that I thought was intended to be oratorical rather than literally financial. When discoursing in regard

the state of Connecticut. The balls have also quite largely disappeared from various other places. However they are not extinct and no one has ever claimed that they are extinct. In some places in Maine and Montana and in the far South the seed balls have been obtained in fairly large quantities. Of course the offer of twenty-five dollars

for a single seed ball does not now hold good, and perhaps it was never intended to be taken literally. From the first the interest in the matter has been scientific and not commercial, vet that statement has been exploited and distorted in various ways throughout the country as a commercial offer applying to a single potato ball wherever obtained. A. T. Cook in the following article quite rightly characterizes such exploitation and distortion as can-Sensationalism is far removed from the spirit of the original article which was merely a plain statement of the fact that potato balls are everywhere disappearing and in certain localities have altogether vanished. Mr A. T. Cook, a seedman of Hyde Park New York, desires information as to the extent of the disappearance in various places, and will purchase potato seed at a reasonable price. \* \* \* \* \*

# The Vanishing Potato Seed Ball. BY A. T. COOK, HYDE PARK, NEW YORK.

Forty or fifty years ago potato seed balls were plentiful in every potato field. Of late years, however, in most sections, few if any are found. Millions of people have never seen one. For the benefit of those who have not it may be said that they grow in clusters on the top of potato vines, a half dozen more or less in a cluster. They look much like green tomatoes, and in the accompanying illustration are shown in the natural size.

Every now and then there looms up a statement to the effect that a "scientist" has offered twenty-five dollars for a single seed ball. This canard has been well circulated by the press but of course has no foundation as applicable in potato balls in general. Although potato seeds surely are vanishing, they are not all gone. Not yet.

Last season I harvested the seed of over seven bushels of balls. If I could have sold them for twenty-five dollars each they would have brought a tidy sum. For this season the prospect is that I shall harvest many more than seven bushels. I have made a specialty of potato seed for the past thirty-five years and supply the leading seedmen of the United States and Canada. There is an immense demand for the seed. Few things sell better. Everything pertain-

ing to potatoes is now of absorbing in-

Potato seeds are curious and wonder-They produce an amazing diversity of potatoes. It is not generally known that each seed, even those from the same seed ball, will bring a different variety, each one more or less distinct from every other. The product of a packet of seeds will be a large number of shapes, sizes and colors. From one packet there may be white, vellow, pink, red, blue, purple, black and variegated potatoes of shapes and types innumerable, some early, some medium and others late. Extraordinary "freaks" sometimes develop, such as those with tubers the shape of a banana and others with vines running along the ground similar to eucumbers, taking root and producing tubers at every joint. I am now growing a promising seedling that produces very long tubers similar to a long sweet potato. No one would recognize it as being of an "Irish" variety I believe it to be of great value.

Potato seeds are exceedingly prolific. It is not an uncommon thing for one seed to produce from fifty to one hundred and fifty tubers the first season. The Montana Experiment Station grew one hundred and eighty-four perfect potatoes from a single seed, and Mr. F. A. McDonald of North Dakota grew the astonishing number of two hundred and seventy-six potatoes from one of my seeds.

Why not, dear reader, try your hand at growing seedling potatoes? They will be the most unique product of your garden. Give your boy and girl a chance to grow them also. They may be the lucky ones. Great success has already attended the growing of new varieties and the end is not yet. Many varieties will yet be found that will bring a golden harvest to the fortunate growers and prove of inestimable value to the world.

The potato never "sports." It is only from the seed that new varieties are produced. Potatoes have their day, deteriorate and disappear. Where now are the Mercers, Peachblows, Colebrooks, Prince Alberts, Cuzcoes lady's fingers, Niggertoes and many others so well known in days of yore? They are gone and gone forever. If all potatoes failed to produce seeds.

every variety would eventually run out and vanish from the earth. It would be difficult to estimate what the loss of this valuable esculent would be to the world.

### Save the Potato Balls.

Gone are the days when the picturesque seed balls could be seen in countless numbers in every potato field. Today they almost seem a relic of a past age. If any one is so fortunate as to find balls on their vines, they should be saved with the utmost care. I can use all you care to dispose of

Potato seeds grow as readily as tomato seeds. Plant them early in the spring and when they are four or five inches high transplant two feet apart. They will produce tubers the size of marbles, with perhaps a few as large as a hen's egg, the first year, and in three years will attain their full development.

The growing of potatoes from the seed is most interesting and the possibility of producing a variety superior to all others and therefore more valuable than a gold mine is fascinating in the extreme.

### Planting Bulbs Upside Down.

Hyde Park, New York.

To the Editor:

Your several articles relative to the planting of bulbs upside down remind me of a little incident that occurred several years ago.

One spring as I was passing by a neighbor's farm where his young son was planting small onions, I jokingly said, "Of course you know that onions should be set out upside down." I passed on, supposing he would take my remark as a joke. But he didn't. After harvesting the onions he said, "Mr. Cook, you were right about planting those onions, for those I planted upside down yielded twice as much as the rest Thus did my fame as a gardener early begin to spread.

. A. Т. Соок.

An editorial inquiry called Mr. Cook's attention to the danger of misunder-standing this letter. Should onions be planted upside down!! He replies:

"My little item sent you relative to

setting out onions upside down is a true incident. I do not pretend to understand it. I suppose the boy was in error. I did not take the matter seriously enough ever to try the plan. At all events, I thought the incident is along the same line as some of your other articles and might call out some interesting comments."

Here and there an Autumn torch is lighted,
Here and there a tongue of flame is seen;
Soon there'll be a monster conflagration,
And so will end the Summer's reign of
green.
—Emma Peirce.

### Yellow Jackets and Hornets.

A letter just received from W. C. Britton, State entomologist, says that the plague of yellow jackets and other hornets is extraordinary. He advises carbon bi-sulphide in their nests, or soaking with kerosene and burning out at night. It is possible that fruit-growers will ask for a law protecting skunks from being killed so extensively as they are for their fur. Skunks are a great benefit, although they do once in a while steal young chickens that are left unprotected at night. Skunks dig up the yellow jackets' nests in the ground and eat the insects and larvae and they also devour many other noxious insects, worms, moths, beetles etc., besides mice and moles. The animals have been trapped so extensively that the increase in vellow jackets may be the result. It is certainly interesting to find the spots where skunks have exhumed the hot little pests and cleaned out their combs, a job that all are willing to leave to friend skunk.

—"The Stamford Advocate."

This item from a local paper in no sense exaggerates the number of yellow jackets and hornets, especially the former, that are present this year. On a recent visit to an apple orchard in Georgetown, and again to a peach orchard in Hunting Ridge, I found it difficult to pare an apple or a peach on account of the yellow jackets and hornets that would alight on the fruit. The peach orchards are full of yellow jackets, and while the workmen do not seem to be stung, it is annoying to have face and hands covered with yellow jackets.



An Elfin Table.

We almost caught the fairy folk
In upland walk to-day,
When we came across their festive board,—
The elves had run away.

The lichen doilies were in place;
And with a yellow flame,
St. John's wort candles burned serene,
As on the scene we came.

We lingered, cherishing the hope
That they might soon return;
But only heard the wandering wind,
Through fronds of eagle fern.
—Emma Peirce.

### A Fasciated Cactus!

The cactus is about the last plant that one would ever think would become fasciated, but it appears that even this plant is not exempt from "tying itself up in a knot."

Professor George W. Carver, Director of the Department of Research and Experiment Station of The Tuskegee Normal and Industrial Institute, Alabama, sends the accompanying photograph of an *Opuntia ficus-inrica* that made such a peculiar growth in one summer. He writes:

"I found it growing out of doors and cut it off just below this peculiar growth and potted it. It has now been potted for about three years and does not seem to change in any way.



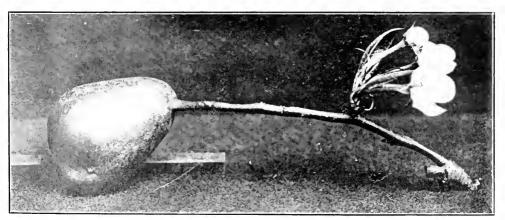
THE FUNNY CACTUS.

It throws out young growths from time to time, and I let them grow a little while and then cut them off."

### A Belated Blossom.

BY H. E. ZIMMERMAN, MT. MORRIS, ILL.

The pear and blossom shown in the illustration were found growing on the same limb three inches apart on a tree at Sand Fork, West Virginia. It is not often that a tree is full of ripe fruit, as this one was, and blossoming at the same time.



PEAR BLOOM AND FRUIT TOGETHER.



#### In October.

The green, cool, decorous forest Has taken to madcap ways: Its aisles are a riot of color, These mellow October days.

From the carpet beneath our footsteps, To the canopy over our head, All gone are the trappings of Summer, Fall tapestries glowing instead.

The red maples started the frolic,
By doffing their summery green
For the liveliest flamelets of color,
That apart from real fire are seen.

The oak trees soon followed in order,
With aspens in rare golden hue,
And ashes, cool, furnished the shadows,
And sometimes the sunshine too.

The splendor can only be transient,
For all flames were ever short-lived,
But from no brilliant, worldly pageant
Is such soulful pleasure derived!

-Emma Peirce.

FIELD BOOK OF AMERICAN WILD FLOWERS. Being a Short Description of Their Character and Habits, a Concise Definition of Their Colors, and Incidental References to the Insects Which Assist in Their Fertilization. By F. Schuyler Mathews, Member of the New England Botanical Club and Author of "Wild Birds and Their Music," etc. New Edition, Revised and Enlarged. With 24 Colored Plates and over 300 Other Illustrations from Studies from Nature by the Author. New York City: G. P. Putnam's Sons.

It is astonishing that five hundred and eighty-seven pages, profusely illustrated, many of the illustrations being in colors, can be put into a book so convenient that it will slip into an ordinary coat pocket, but it has been done in this case. To the reviewer this seems to be the best of all the handbooks for field and indoor use with our common wild flowers. The arrangement is commendable; the descriptions are concise and readable, and every quality of the book enables the reader to find readily the illustration and the description of a flower. With such a handbook no nature lover has any excuse for not knowing our common plants.

THE GARDEN UNDER GLASS. By William F. Rowles. Philadelphia, Pennsylvania: J. B. Lippincott Company.

The culture of fruit, flowers and vegetables under glass has in this book a practical and timely guide that will be appreciated by the army of Americans now fighting the high cost of living. The book was originally published in England, and describes the English practice of growing fruit and vegetables for the home table. The plans are well worth adopting in America.

A Textbook of Botany for Colleges. Part II. By William F. Ganong, Ph. D. New York City: The Macmillan Company.

This book is intended to assist in a general laboratory course in botany and in the study of botany as a part of a comprehensive education. It does not discuss theories, but is truly conservative, adopting only such statements as have survived the test of criticism. It is well arranged and will undoubtedly appeal to the professional teacher. It also contains a great amount of material useful and important for the student of nature in general.

Ferns A Manual for the Northeastern States, with Analytical Keys Based on the Stalks and on the Fructification. With over Two Hundred Illustrations from Original Drawings and Photographs. By Campbell E. Waters. New York City: Henry Holt and Company.

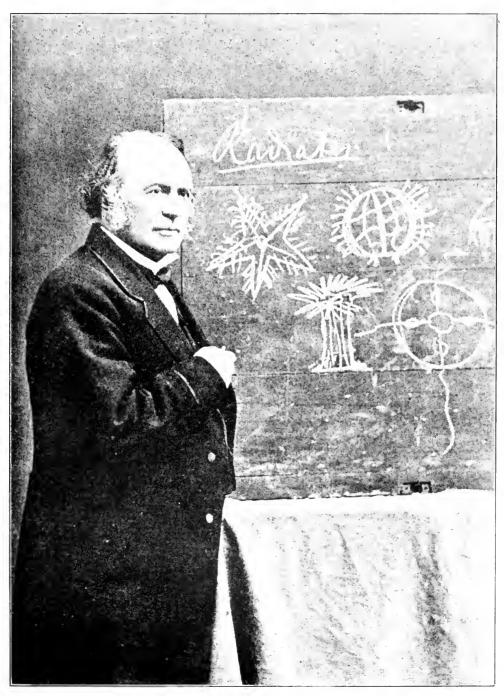
The Photographs in this book are extremely fine and impress one with the beauty of the ferns. Those that desire to study this botanical order will find them helpful in identification. The text is well arranged and not so extensive as to be discouraging. It tells just what one wants to know, and does not enter too deeply into technical details. To the reviewer it seems to be the best obtainable general book on ferns. There are one or two others pretty nearly as good, but this really appears to merit the first place. We recommend it to all our students.

Louis Agassiz as a Teacher. By Lane Cooper. Ithaca, New York: The Comstock Publishing Company.

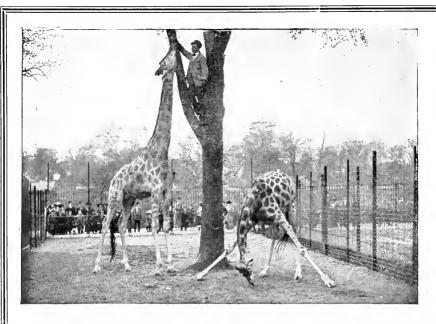
A teacher of English has issued this book to prove or perhaps rather to inspire others with the belief that the best method of teaching English is practically the same as that employed by Agassiz in teaching nature. He expresses the purpose of the book as follows:

"And I might go on to show in some detail that a doctoral investigation in the humanities, when the subject is well chosen, serves the same purpose in the education of a student of language and literature as the independent, intensive study of a living or a fossil animal, when prescribed by Agassiz to a beginner in natural science."

He has conferred a favor upon all naturalists by collating chapters on Agassiz's methods of teaching Professors Shaler, Verrill, Wilder and Scudder. There are also other interesting chapters, especially one on "Agassiz His Personality" and "Passages for Comparison with the Method of Agassiz."



LOUIS AGASSIZ AS A TEACHER.



"The Two
Extremes."
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For nature pictures of every kind there is a Bausch & Lomb Lens.

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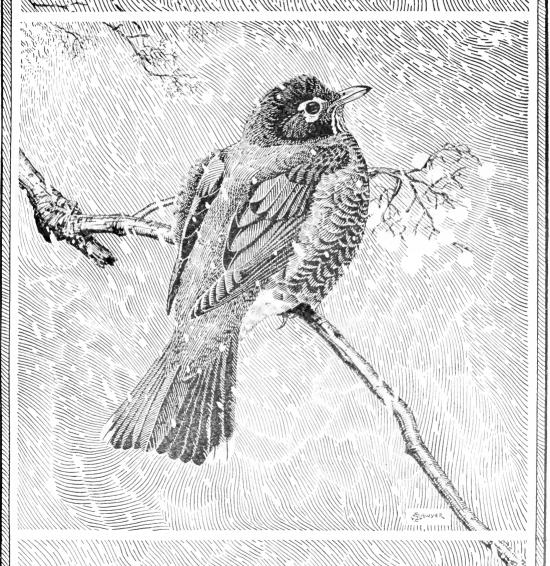
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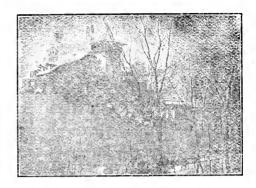
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By MAY MANTON



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For the 10-year size will be needed 5 3-8 yards of material 27 inches wide, 5 yards 36.

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### Local Notices.

# Rapid Growth of an Optical and Camera Business.

W. A. McClelland reports satisfactory progress in the upbuilding of the branch of his business opened last May in the building formerly occupied by The Putnam Trust Company in Greenwich, Connecticut. Mr. McClelland's business in Stamford has also outgrown its present location and will necessitate enlargements in the near future. Both stores are equipped with every facility for supplying eyeglasses cameras and similar optical goods. At the Stamford store an expert photographer and assistants are doing commendable work for amateurs, and the store is rapidly advancing along these lines. Mr. McClelland and Mr. Pratt, who is associated with him, have become popular through their courteous and genial manners and through the satisfactory treatment which they give to every customer. There is a pleasing, homelike atmosphere of geniality about the store that has proved more These methods tothan attractive. gether with the high class goods sold at reasonable prices are rapidly building up an enormous optical business We are glad to know that the public is in sympathy with these enterprising gentlemen. They deserve it.

### Greenwich Schools at ArcAdiA.

The Greenwich Academy spent the afternoon of October 9th at ArcAdlA.

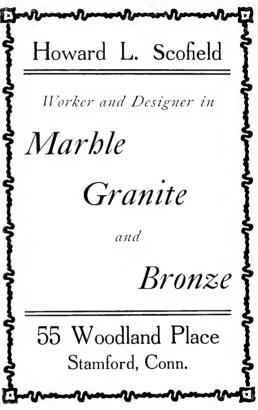
The Wabanaki School was here on Saturday, October 20th, and is to be with us again on November 24th.

The Boy Scouts had a lecture by Scout Master Crandall on the Boy Scout movement on October 12. Refreshments were served, and a general social evening enjoyed

Miss Bessie L. Putnam of Harmonsburg, Pennsylvania, and her friend Mrs Ida Wright of New York City, spent the afternoon and evening of October 13th at Arcadia. In the evening they were guests at the regular meeting of

the Seely Chapter of Stamford in the Welcome Reception Room.

I have been a lover of nature from childhood up, but The Guide to Nature has increased my love tenfold.—Cleveland P. Hickman, Littleton, West Virginia.



### INSECTS WANTED

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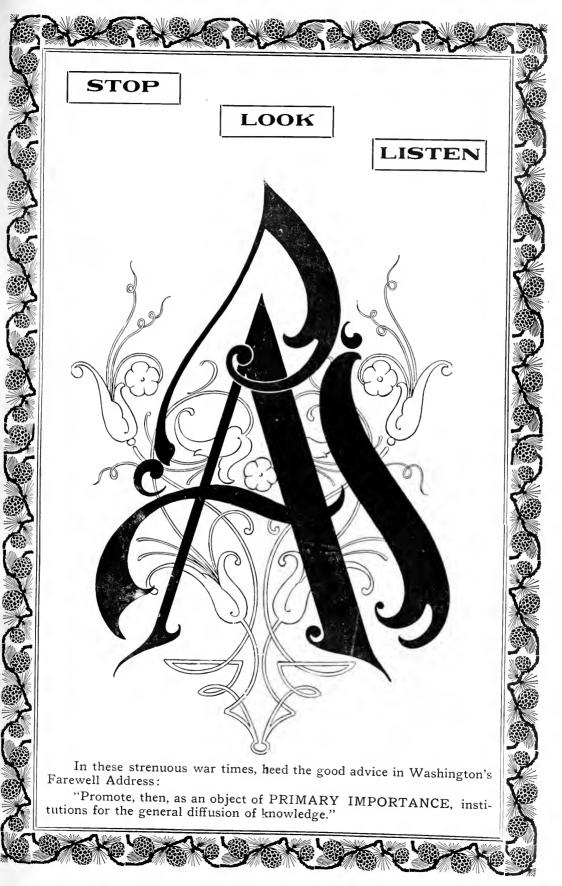
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C. O. MILLER HALE AND HEARTY AT THREESCORE YEARS AND TEN-

## Completing Fifty Years in Business.

The Remarkable Half Century Success of Mr. C. O. Miller as Evinced in the Astonishing Development and Present Prominence of The Miller Store.

This article is written and these photographs were taken by the editor of this magazine for two reasons: first, personal, to chronicle the astonishing success of Mr. C. O. Miller, a good friend to The Agassiz Association and a hearty cooperator with ArcAdiA; second, because we desire to congratulate him on beginning the last year of the half century of a successful business, and particularly upon his celebration of the fiftieth holiday announcement of the opening of this staunch and trustworthy dry goods store.

This magazine stands for local development, for interest in our homes, especially in those that are becoming plentiful and beautiful in the suburbs of Stamford and the surrounding territory. We believe that a store that has taken active interest in all the homes of this vicinity is entitled, aside from any advertising, to a recognition of personal merit. This announcement is not an advertisement. It is not written in the spirit of an advertisement. Whatever results may come from it as an advertisement will be a secondary matter and as a corollary to our personal good intention to say good words of good people who deserve them. If this were an advertisement, we would lay special stress upon the class of goods that the store contains and upon the facilities for supplying its customers, but we mention these only as a necessary incident.

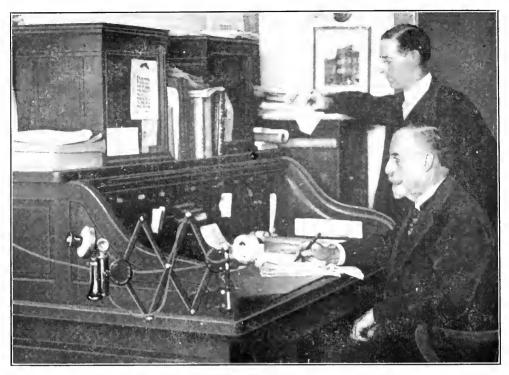
First the editor wishes to congratulate Mr. C. O. Miller upon his ability thoroughly to enjoy life at the age of threescore years and ten. He has through all his life been the exponent of human sympathy, of hearty interest in his fellow beings, of an active worker in church and society, and in financial circles, so that he deserves all the good words that we can give him. He has so many times encouraged others by a hearty greeting and words of good cheer, he has so well embodied all that is best in Stamford and its vicinity that the community would do well to take

this as an especial opportunity to imitate his cordiality, to grasp his hand and congratulate him on his personality and his business acumen.

The editor asks as remuneration for his article the pleasure and privilege of saving these things in his own way. That is what he has done and intends to do. He wishes it to be distinctly understood that neither is Mr. Miller nor are any of his associates responsible for any of these statements. It is his right. the editor claims, to express publicly the thoughts that seem to him appropriate at this time, and while he asserts again that his reason for occupying so much space is not primarily to publish an advertisement, he hopes that there may be some pleasing results from this publicity. But what of that? Should not goodness and efficiency be published and published widely in commendatory words? There is plenty of the other thing going around nowadays.

Mr. Miller is still actively engaged in the management of his store. He has not laid down the cares of business and evidently does not intend to lay them down for some time to come. He also finds time, as he always has, to devote attention to many things of community uplift and to his home and its surrounding grounds on South Street. It was therefore only right for the editor to urge Mr. C. O. Miller to be photographed in a beautiful and secluded part of his garden. We take much pleasure in publishing that photograph. We are not only giving to all the citizens of Stamford a good photographic souvenir of this well-known man, but we are introducing him to newcomers and to friends in distant places as a hale, hearty, cordial, active business man and a good friend.

Mr. C. O. Miller is fortunate in having a son who has so efficiently taken bearty greeting and words of good cheer, he has so well embodied all that is best in Stamford and its vicinity that the community would do well to take of The C. O. Miller is fortunate in having a son who has so efficiently taken bold of the business. Mr. C. O. Miller is fortunate in having a son who has so efficiently taken bold of the business. Mr. C. O. Miller is fortunate in having a son who has so efficiently taken bold of the business. Mr. C. O. Miller is fortunate in having a son who has so efficiently taken bold of the business. Mr. C. O. Miller, Jr., graduated from Dartmouth College in the class of 1899 and entered his father's business immediately afterwards. He is Secretary and Treasurer of The C. O. Miller is fortunate in having a son who has so efficiently taken bold of the business. Mr. C. O. Miller is fortunate in having a son who has so efficiently taken bold of the business. Mr. C. O. Miller is fortunate in having a son who has so efficiently taken bold of the business. Mr. C. O. Miller is fortunate in having a son who has so efficiently taken bold of the business. Mr. C. O. Miller is fortunate in having a son who has so efficiently taken bold of the business. Mr. C. O. Miller is fortunate in having a son who has so efficiently taken bold of the business. Mr. C. O. Miller is fortunate in having a son who has so efficiently taken bold of the business. Mr. C. O. Miller is fortunate in having a son who has so efficiently taken bold of the business. Mr. C. O. Miller is fortunate in having a son who has so efficiently taken bold of the business. Mr. C. O. Miller is fortunate in having a son who has so efficiently taken bold of the business. Mr. C. O. Miller is fortunate in having a son who has so efficiently taken bold of the business.



MR. MILLER AND HIS SON, C. O. MILLER, JR., PLANNING TOGETHER.

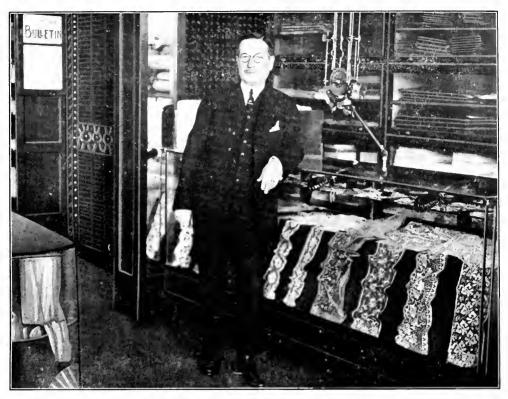
several departments, has charge of the advertising, and assists in the general management of the business. He has inherited the ability and the genual qualities of his father, and every one who recognizes the value of such a store as a community interest, can but feel glad that the father has such an able cooperator.

Mr. Frank E. DeCamp has been with the store since 1877, beginning as clerk and is the personification of a devoted and careful business man. He harmonizes well with the cordial spirit of the store. He is ever ready to greet a customer and to see that that customer finds what he wishes to find and is served satisfactorily. In the perfect working of the establishment no little credit is due to Mr. DeCamp.

Mr. Oliver H. Couch, the fourth member of the corporation, has been with the store since 1893. He is entitled to liberal credit for faithful work especially in the remarkable growth of the domestic department.

The editor has tried to make clear by aid of his camera some of the store's principal features. The photographs will be better understood by the following condensed description of its general plan. We enter into no extensive commendation of the goods, because everybody knows of the high standard maintained by The C. O. Miller store.

In September, 1868, C. O. Miller at the age of twenty years began business. for himself on Main Street in a small store, opposite the Town Hall. He removed in September, 1870, to a new and larger stand on Washington Place, where he continued until the erection of the fine building on Atlantic Square. in 1882, now occupied by The C. O. Miller Company. His increasing business demanding more room, it was necessary to enlarge the building several times prior to the incorporation of the company. The original space was thirty-five by one hundred and twenty feet with the first floor and basement in use. This later was broadened and extended at the rear and the entire building occupied. In February, 1907. Mr. Miller incorporated the business under the name of The C. O. Miller Company, C. O. Miller, President, and C. O. Miller, Jr., Treasurer, who together with F. E. DeCamp and O. H. Couch form the Board of Directors.



MR. DeCAMP-ALWAYS ON THE JOB.

### Development of the Building.

In 1916 a radical change was made. The street at the rear was spanned by a bridge thirty feet wide, thirty-two feet in length and two stories high. leading into a new three story building. In this are housed two model departments for the domestic and carpet stocks occupying the second and third floors respectively. In the first floor or basement of the addition are a new heating plant, stock rooms and a shop for upholstering and drapery work. The building now has a total depth of two hundred and fifty feet and a width varying from thirty-five to forty-six feet. In 1916 the old ash fixtures in the main store were largely replaced by new fixtures in mahogany finish, and many new cases and many special display features were added. A new overhead Lamson Electric cash system with drop stations was introduced. The store windows were remodelled and enlarged parquet floors were laid, mahogany and mirror backgrounds installed, tapestry curtains with valance and paneling put up. Other numerous changes were added at this time, all of which have greatly increased the efficiency of the business.

### Wide Range of Serviceable Goods.

The C. O. Miller Company endeavors to serve all people. Within its confines are found goods which will appeal to all classes. Nothing is excluded except trash. Goods are cheap not in quality but only in price. The woman with a slender purse or the one with the larger pocketbook can both be satisfied from the superb stock. The business which has been so steadily and consistently built up during a period of fifty years is surpassed by few other establishments of the kind in the state.

### Description of Store Arrangement.

Entering the front door we see at the right gloves, laces, dress trimmings in about thirty-five feet of cases lighted by electricity. Then we come to the elevator—Otis Electric—connecting the three floors and the basement. Then follow toilet goods, notions, leather goods, stationery in about seventy-five



MR. COUCH WILL TAKE YOUR ORDER.

feet of cases. At the left, hosiery and underwear department, sweaters, umbrellas—about sixty feet; then follow dress goods and silks, Butterick patterns—about sixty feet.

In the center, the ribbon department and kindred goods, about seventy feet of cases. Then ladies' neckwear department, furs, etc., about forty-five feet of cases. Directly under the skylight an area is given to exhibition cases and tables for the display and sale of merchandise from all the departments, special sales, about fifty feet of cases. At the rear of the main floor in the old building is an art department, one of the most attractive in the store, about thirty feet of cases supplemented by tables. Opposite this the building broadens. Here we find a stairway to the second floor, a public telephone booth and store offices extending over the bridge on the south side, covering an area of fifteen by forty feet. Opposite the office on the bridge is the linen department and following this and in the new addition is a large and well appointed array of domestic stock, bedding, etc.

### On the Second Floor.

Leaving the elevator at the second

floor we enter the center of the department for ladies' ready-made articles and kindred objects. The most modern cases and fixtures protect and display these goods. This department occupies the entire width of store and extends back for about eighty feet. At the front a ladies' rest room has been supplied.

Beyond the ladies' department is the drapery section with a separate, carpeted area with pole fixtures for displaying the draperies and extending back for about forty feet. Then we arrive at a well equipped luggage department.

We have now come to the new addition on the second floor occupied by the carpet department. In equipment, lighting and general attractiveness this department compares favorably with those in much larger city stores. Rugs are shown on the floor and flat in piles. Linoleums are shown in the roll, on end and facing out. Carpets are shown in the shelves, facing out.

### On the Third Floor.

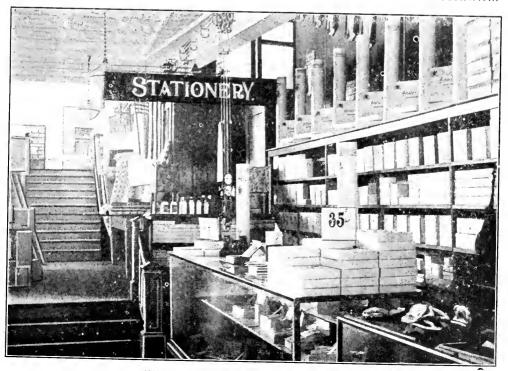
Leaving elevator at the third floor we enter the center of the china department. The entire floor is given over to china, bric-a-brac, cut glass, lamps and shades and many kinds of novelties.



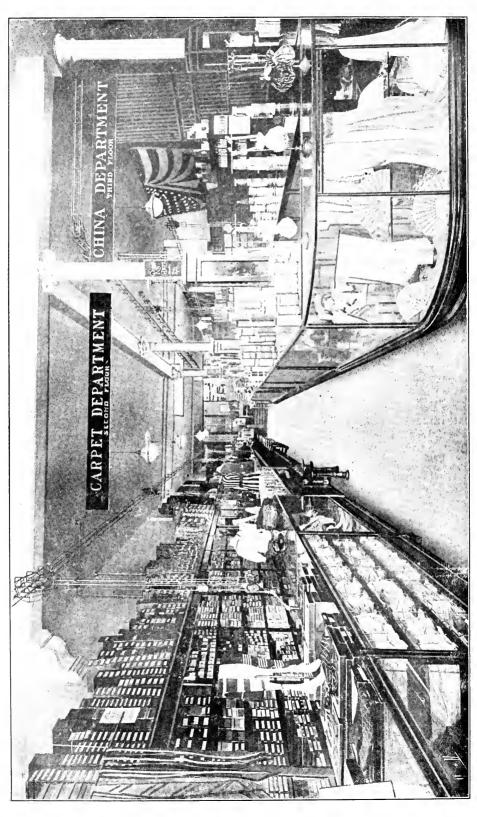
HOSIFRY AND UNDERWEAR.

The delivery service is one of the most important features of the store service. An automobile delivery, with from two to four cars, insures the rapid

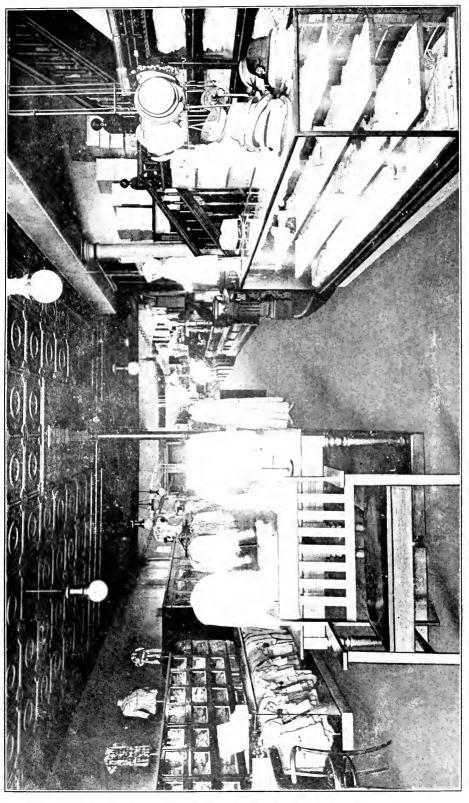
transmission of packages. The delivery system is not confined to Stamford, but reaches out to suburbs—New Canaan, Darien, Sound Beach and Greenwich.

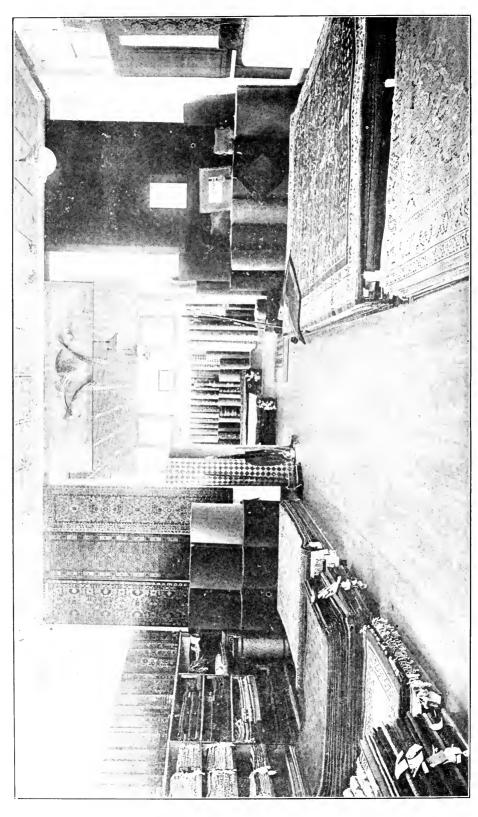


SUPPLIES FOR THE CORRESPONDENCE.

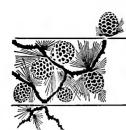
















### A Real Sound Beach.

What could be sounder than a beach of rocks, and what could be more picturesque? It is probable that many people even in Sound Beach and its vicinity do not realize the wonderful rock-bound coast that we have in many places, and at intervals long stretches of smooth strand. Here is a marine view as picturesque as any that can be found in the world—a beach of solid stone, a little bay, a slender rocky peninsula and a lighthouse in the distance. all properly combined with passing boats to suggest the charm of the great ocean. If one were asked to point out the most picturesque part of the beach in Sound Beach, a selection would be difficult; all places are good, each in its own way, but one that seems to be particularly so has attracted the attention of a camera. It is the shore frontage owned by Mr. John Clark Udall, and shows as a background the pleasing seashore residence with concrete embankment and the picturesque pier owned by Mr. William C. Strange.

We frequently receive inquiries from friends at a distance, asking if we are directly on the beach. No, Arcadia is about a mile from the Sound, but the beach is easily accessible by trolley car, by good road and by plenty of room for flying machines. We are just far enough away to be secluded and yet to have all the advantages of the beach. Some day when Arcadia shall have grown into the larger, ideal nature university, we fancy that one of the attractions that will then be advertised



THE PICTURESOUE PIER AND MR. STRANGE'S RESIDENCE.

will be the wonderful beach and the prolific source of supplies for a laboratory of marine biology. We are told that the marine fauna and flora of this coast are even better than those of the Long Island shore, where a well-known and well established biological laboratory is situated. For residences we have a beach second to none in the world. Year after year our houses are well rented and new ones are constantly in process of construction. Opposite ArcAdiA, across the road, several attractive houses have been erected within a short time, and the growth has been practically the same in many other parts of this advancing summer resort But Sound Beach should become and rapidly is becoming a place for permanent residence. To any one contemplating moving to this vicinity, we wil' gladly give the addresses of local rea estate agents who will attend to the supplying of whatever may be needed.

Sound Beach on Long Island Sound My summer home shall be; Or, better far, all the year around, And that sounds good to me.

### Potato Seed Balls in Connecticut.

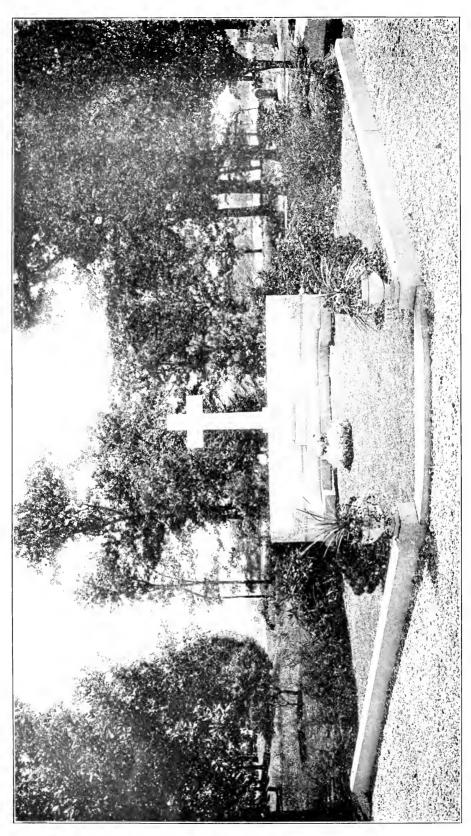
After a search in cooperation with several naturalists and farmers, and after liberal notices in the newspapers of the state for about twenty years, five small potato fruiting balls have been reported by Judge H. Stanley Finch of Stamford. We believe these to be the first that have been found in Connecticut. They are the first to be reported.

Contrary to general popular opinion, no one has ever taught that potato balls are entirely extinct. In some parts of the United States they are still found in fair quantities, but these are the first reported from Connecticut for nearly a quarter of a century. From several states, Connecticut taking the lead, potato balls have practically disappeared, the potato seeming to have learned that they are not necessary for the plant's welfare.

I seem to feel a personal pride in the magazine, and a desire to have all the world of children—young and old—know it and care for it the way I do. The cover for September is charming.—Mrs. S. O. Edmonds, Sound Beach, Connecticut.



IT'S A REAL SOUND BEACH.



### A Beautiful Monument in Natural Surroundings.

It is the mission of this magazine to tell of homes near to nature, of ramblers' walks in nature. Then why should we not speak a good word for charming, natural surroundings for the homes of the dead? There is no more reason why a cemetery, visited by the friends of the dead, should be lacking in the charms of nature than for a garden. Nature is a joy forever, a charm and consolation not only in the environment of the living but in the surroundings of the dead, because nature cheers and consoles. She offers a balm to the sick heart; she comforts in sorrow as no other friend can comfort.

It is for this reason that we here present a full page view of one of the most attractive monuments in picturesque natural surroundings that it has ever been the editor's privilege to gaze upon. Here is a resting place restful to the eyes. The form of the monument as a seat suggests rest. The view of the bay, of placid Long Island Sound in the distance, with the still more distant vista of grove and field, the trees the well kept lawns, the flower urns and the evergreens, all combine to comprise an inviting place. The monument, in the form of a settee, bears the words, "Until the day break, and the shadows flee away." The natural beauty of this place has been used to so great advantage by the charming design of this unique monument that we have asked Mr. Howard L. Scofield to write a detailed decription of the work. It is in Woodland Cemetery, Stamford, Connecticut.

"The love of structural beauty was a leading characteristic of the Greeks in the times when that people led the world in aesthetics, and found expression mainly in the erection of temples and tombs. Whatever may be said of their mythology, more refined but less sturdy than that of Northern Europe, it certainly developed—and their religion was at the bottom of it-works of matchless beauty which to this day, in their ruined shape, challenge the admiration of all and are the despair of modern builders. As they were firm believers in immortality—the continued existence of the individual in the great Bevond—their affection for those dear

to them did not terminate with this life, and was shown by the peculiar care given to the designing, erection and preservation of sepulchral monuments and tombs. Indeed, the frequent funeral feasts and other rites peculiar to their faith at the graves of the departed made it well-nigh impossible that they should be forgotten or unmarked or that memorials once placed should be allowed to fall into disrepair.

"Among a multitude of other forms, all exquisite in proportion and adornment, the one in especial favor when means admitted of its purchase was the exedra. Originally built as a meetingplace for the philosophers or teachers of the day and their pupils, it soon suggested itself as a form equally convenient for the assembling of families in the cemeteries, when they visited the graves of their departed for the performance of the funeral rites which were considered requisite and properly reverential. It was in this latter use that the exedra reached its highest development and perfected form-so perfect, in fact, that we moderns who must needs borrow, and cannot add to anything architectural of Greek origin, when we desire to erect a memorial along classic lines, find no better motif for our work than that of the structure mentioned. That it is so is sufficiently attested by the numerous examples erected to the memory of the great scholars, statesmen and soldiers of Europe, by St. Gauden's noble monument to Admiral Farragut in New York City, the Benjamin Harrison memorial in Indianapolis, striking examples in Sleepy Hollow and Woodlawn Cemeteries.

"So it is a matter worthy of note that our local cemetery has now placed in it the J. Hudson Brown memorial, erected by Howard L. Scofield, a particularly fine reproduction of ancient architectural worth.

"The exedra makes a compliance with the following conditions imperative: A choice of material which shall preserve the soft contours, and at the same time clearly define the gentle curves and fine lines of mouldings and other embellishments; proper natural setting of outlook, shade and foliage; conscientious eraftsmanship, which considers every detail, however inconspicuous, an important part in the success of the

completed whole. That these requirements have been met in the Brown exedra must be evident to the cursory observer, while it can be safely affirmed that the work will bear the closest criticism of the expert stoneworker or designer. The burial plot, which is triangular, is enclosed on one side by the memorial proper. The other sides are defined by finely wrought coping. through which, giving a dignified approach to the monument, is an entrance flanked on either side by vases of classic design, filled with blossoming plants. The central feature of the monument is a massive Latin cross on a pedesta! showing in letters sharply relieved the name and record of the deceased. This, in turn, is supported by three guardians of symbolic significance. On the inner surface of the converging walls, in picturesque Roman text, is carved the quotation, 'Until the day break, and the shadows flee away.' This legend, as well as the whole concept of the admirable memorial, is a sermon in stone. and speaks eloquently as may be of the \*reasonable, religious and holy hope, which comforts the departed and cheers those who survive for a season."

### Increasing the Food Supply.

Many employees of the New York, New Haven and Hartford railroad company have utilized the opportunity presented by the company last spring and are raising "war gardens" along the railroad's right of way and on other vacant property of the company.

The land is leased to the employees at a nominal rental through the real estate department of the company. There are a great number of small parcels of land also that have been leased with similar concessions by the operating department, the records of which have not yet reached the real estate department. It is not possible, therefore, to estimate closely at this time the total acreage devoted to employees' gardens, nor the number of such gardens that have been planted.

The "war gardens" are located in Massachusetts, Rhode Island, Connecticut and New York. They are producing crops of potatoes, tomatoes, corn, peas, beans, onions and many other vegetables. Some of the gardens

are over an acre in area, while others are considerably smaller.

A plan was adopted by the company last spring to encourage employees to make use of the available land. A form of lease was approved whereby for a nominal consideration and without delay or formality employees could obtain such land as they could reasonably cultivate

This action on the part of the New Haven is in line with the efforts of all the railways of the United States to be of the utmost service to the country in the present crisis. The railways have taken extraordinary measures to stimulate food production and millions of acres of railroad land have been rented throughout the country for agricultural purposes.

# Upside Down the Best? New York City.

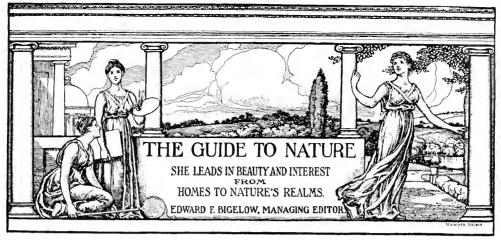
To the Editor:

Here is another note about planting bulbs upside down. I have never planted bulbs in that way, but last spring a green gardener in my employ planted two rows of asparagus roots upside down. I happened to appear on the scene when all but three or four were covered in. To dig up and replant these two rows meant much extra work at a busy time. I knew that the chances were fair for the sprouts to loop the loop and eventually to appear in the sunshine, and they not only did that but these were the best two rows of asparagus that I have ever planted. That might sound like too much of a joke, if these two rows were not still in existence for any of your readers to see. I have no philosophy in explanation and would prefer to consider the incident as a simple coincidence.

Some time ago I gave several Japaneese heart nuts to a friend who passed them over to his negro gardener for planting. Two weeks later it was discovered that the gardener had not planted them and when asked for the reason, he replied:

"Well, Massa John, I didn't know which was top o' them 'ere nuts, and I's 'fraid if they was planted upside down, them trees would grow like weepin' willows."

> Yours truly, ROBERT T. MORRIS.



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Number 6

## Correspondence.

Bee-like Flies.

Stamford, Connecticut.

To the Editor:

To settle a dispute, will you kindly let me know whether the enclosed insect is a fly or a bee? I know it is a fly, but your word will be authoritative Sincerely.

Paul L. Lockwood.

The insect that you send is a member of the Syrphidae, an interesting family of flies. These are commonly called Syrphus-flies, flower-flies or hover-flies and include fully twenty-five hundred known species, of which more than three hundred are found in this country Many of the Syrphus-flies resemble bees and wasps in appearance, and almost all are bright and handsome They feed on nectar and pollen, and for that reason are to be found during sunshiny hours among the flowers, hovering like tiny humming birds in front of open blossoms, or crawling bee-lik in and out of deep flower cups. Some make a distinct humming or buzzing as they fly and this increases their resem blance to honeybees, but bees have four wings, while flies have only two. This would have told the story to your friends, if they had remembered the fact.

In the summer a few years ago. I

put a hive of honeybees in a private school for girls. At the beginning of autumn I received a peremptory order to remove that hive, because the bees were going into girls' rooms and stinging the inmates. The stinging was purely imaginary, and so were the honeybees, because examination proved that the insects were not bees but Syrphus-flies. Not a girl had been stung but all were afraid they would They were like Thomas Carlyle and the neighbor's dog. "The dog can't disturb you, Mr. Carlyle; he never barks." "I know he doesn't," said the irritable author, "but I am afraid he will"

Every autumn this question comes from various sources. It would be good missionary work if you could induce people to see things and not to jump at conclusions on shallow circumstantial evidence.

E. F. B.

### Be Happy with Our Own.

Greenwich, Connecticut.
To the Editor:

The current number of The Guide TO NATURE is the best of all. Especially interesting is your leader on the Concord grape. You do not speak of the original vine as being on the Bull place

and perhaps it is not there, but a vine has been shown to me as the original.

The subject of the cultivation of foreign trees and the introduction of foreign birds is an exceedingly interesting one, and if you are as interested as I am, possibly you will follow the grape topic with one on the introduction of foreign evergreens.

The spruce in the fjords of Norway is a beautiful tree as it grows from the crevices in the rocks, far above the sea, but on cultivated lawns it always seems a misfit and after twenty years usually becomes a miserable failure. The white pine of northern New England thrives in a light, sandy soil, but it is rarely successful in Greenwich, where the soil is too heavy and the owner is too liberal in the application of fertilizer.

We have already made foolish moves in the introduction of foreign birds as attested by the English sparrow and the starling. Our own native trees and birds are of sufficient beauty, variety and value to make everybody happy and with them we ought to be content.

Yours sincerely, Frederick A. Hurbard.

# Origin of the Baldwin Apple and Others.

New York City.

To the Editor:

It seems that soon after 1740 the Baldwin came up as a chance seedling on the farm of John Ball at Wilmington, near Lowell, Massachusetts. You will notice that this was thirty-five years before the Revolution. country must then have been a wilderness in part, and I have no doubt the tree came up in the woods or in the corner of some half cleared field, as we find such seedlings growing to-day. The apple was found and its quality recognized, but for about forty years its cultivation was confined to that immediate neighborhood. The farm finally came into possession of a Mr. Butters who gave the name of Woodpecker to the apple because the tree was so often frequented by woodpeckers. time the apple was also known as But-

It at last came to the attention of Colonel Baldwin, by whom it was propagated and introduced throughout eastern Massachusetts as early at 1784, and from his interest in the variety it was finally named Baldwin. I am told that in 1817 the original tree was still alive. It was destroyed some time before 1832, but a monument to the Baldwin apple now marks the location. The apple has become the leading variety for commercial purposes in this country. Throughout the eastern states and the north it far surpasses any other, and has brought almost untold wealth to the New England states.

It is remarkable, in a study of the history of our leading fruit varieties, to see how many came from New England. The famous Rhode Island greening was found as a wild tree in Rhode Island some two hundred years ago. The famous Roxbury russet is said to have originated in Massachusetts about 1650. Sutton Beauty is also a Massachusetts product, and all these were found originally as wild seedlings, usnally growing in the woods. The same is true, as of course you know, with the Bartlett pear. In fact the woods and hillsides of New England have been astonishing prolific in giving these high class fruits to the world. That is why I believe that out of these hillside forests will come in time the hickories which are to change the character of our New England country life.

> Very truly yours, H. W. Collingwood.

### From a Lover of Grapes.

New Rochelle, New York. To the Editor:

I have been much interested in your timely article on grapes, and your explanation of how the Concord and Delaware varieties got their names answers an inquiry that has always been in my mind, although I cannot say just why I have never taken the trouble to look it up.

I suppose each of us has a special fondness for some kind of fruit. In California during the top of the orange bearing season it seems as if no fruit could be more attractive or beautiful yet I once knew a person who declared there could be no finer exhibition of fruit than that which decked the trees in a well cultivated apple orchard. But for me the grape has always had first place. I may say it is my favorite fruit.

Its association with the milk and honey of the good old Bible days, and its place in history as the symbol of plenty and comfortable living, seem always irresistibly conveyed to the senses by the rich and lucious bouquet that pervades all regions of the clustering vine.

I want to add a bit of history to your article. In Fiske's "Discovery of America" there are some interesting passages about grapes. These have a particular value in view of what you have said about the origin of the Concord grape. He tells us that probably in the summer or early autumn of the year 1000, the famous Northman Leif, the son of Eric the Red, with a crew of thirty-five men, brought his ship to a harbor which was reached after cruising along the shores of a strange coast. Here they went ashore and one of the erew, a south country man named Tyrker, came in from a ramble in the neighborhood making grimaces and talking to himself in a language (probably German) unknown to his comrades. They finally learned that his excitement was caused by the discovery of vines loaded with grapes, and as a native of a vine country he was quite overwhelmed. Leif accordingly called this country Vinland. Now the seguel. Fiske with his usual painstaking care weighs all the pros and cons concerning the location of this Vinland and finally reaches the following conclusion—I

"On the whole we may say with some confidence that the place described by our chroniclers as Vinland was situated somewhere between Point Judith and Cape Breton; possibly we may narrow our limits and say that it was somewhere between Cape Cod and Cape Ann."

In other words, within the borders of what is now the State of Massachusetts.

S. C. HUNTER.

The playful little maples are in their gala dress,

Their leaves, they dance in every breeze that blows;

The conifers behind them are robed in living green,

Nor will they change till hoar with Winter snows.

-Emma Peirce.

### Curious Natural Grafting.

Ottawa, Ontario, Canada. To the Editor:

I enclose a photograph of a tree that I met with in one of my strolls. It is a curious example of a "wind graft" of



TWO ELMS FIRMLY GRAFTED.

two elms. The elbow from the larger elm is firmly grafted to the neighboring tree, the parent meanwhile having been killed by lightning.

Jos. Boucher.

You will find something far greater in the woods than you will find in books. Stones and trees will teach you that which you will never learn from masters.—St: Bernard.

A woman brushed a dewdrop from a rose. "A diamond shall replace it," said the woman. "It cannot," sobbed the parched flower.—E. Scott O'Connor in "Tracings."

## The Heavens in November.

By Professor Eric Doolittle of the University of Pennsylvania.

November is the "Pleiad-month"; had we retained the beautiful little group of the Pleiades in the important position assigned to it by many early peoples, our New Year would occur on the 20th of the present month, when the "Seven Sisters" are exactly opposite

even with the naked eye; an opera-glass or small telescope reveals a far greater complexity in the apparently simple cluster, while it was reserved for the modern photographic plate to show us that this entire group of suns is immersed in and mixed up with a most re-

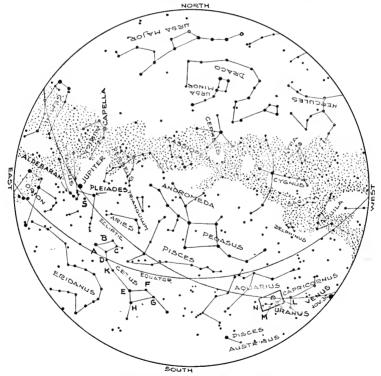


Figure 1. The Constellations on November 1, at 9 P. M. (If facing south, hold the map upright. If facing east, hold East below. If facing west, hold West below. If facing north, hold map inverted.)

the sun in the heavens, and this day would be for us a day of important feasts and national festivals.

Now, however, this little star figure is hardly known at all, except to those who take pleasure in watching the face of the sky. In its delicate beauty the little group is well worthy of study,

markable nebulous cloud whose inconceivably vast streamers join star with star and fill the whole region with a faintly shining light. Lastly, a careful study of this light with our most refined modern instruments seems to show that it is reflected light, so that what we see is apparently an opaque cloud faintly

illuminated by the light of its many neighboring suns. It may readily be imagined that this discovery has a very important bearing on our studies of the structure of our universe, and thus, although the Pleiades may be unknown to the great majority of people, they hold a high position in the regard of the astronomer.

### The November Stars.

The region of the sky between the Pleiades and the eastern horizon is now filled with most brilliant and beautiful stars. The entire constellation of the Bull has risen high into the heavens: to the left of this there shines the bright golden sun, Capella, while below it we see the Twins and Orion, (that most brilliant of all the star groups), just emerging from below the ground. In almost the exact center of the constellation of the Bull, there shines out the reddish Aldebaran, one of the most conspicnous of the winter stars but whose brightness is now so far exceeded by that of the near-by planet Jupiter that it is this latter object which first catches our attention as we turn toward the eastern sky.

The very brilliant stars just mentioned constitute the first of the bright winter groups. From now until next March they will be seen riding high in the evening heavens in excellent position for examination and study. Before turning his attention to these, there is a special reason this month why the observer should trace out and become familiar with the far fainter, though extended, group of Cetus, which is now found in the south, a little to the east of the meridian.

Cetus is the fabled sea monster, usually represented as resting on the bank of the Celestial River, Eridanus, with his forepaws in the water. All of its stars are, unfortunately, rather faint, but the observer may with little difficulty locate the irregular pentagonal figure of five stars, A B C D, Fig. 1, which marks the head, and also the irregular group of four stars at E. F. G and H, after which a recognition of the remaining stars of the figure becomes easy.

The star at D will be found to be a beautiful double in a small telescope, the components being three seconds apart and described as yellow and ash This double sun system is drifting across the face of the sky at a rate which will change its position an amount equal to the apparent distance across the face of the full moon in the course of nine thousand years. The star at F has a distant companion also, though too faint to be seen in a small telescope, and this star is drifting even more rapidly than the star at D. There are some eighteen other interesting double stars and many nebulas within the borders of this little known constellation but its most remarkable object is, beyond question, its wonderful variable star, Mira, which will be found at

### The Variable Star, Mira.

The observer will have no difficulty in finding the wonderful Mira, for it is nearly in line with the eastern edges of the two quadrilateral figures already referred to and about midway between them. At a rather irregular interval of about three hundred and thirty-one days this sun increases thirteen hundred times in brightness, and its time of greatest brilliancy will occur this year on the first of the present month. The observer will then probably see it shining about as brightly as the star at D, and it may even become so bright as the star at A. But if he will look at it from time to time during the coming weeks he will see that it is very rapidly fading away; in the course of a few months it will sink far below visibilty to the naked eye, not to rise again until the autumn of next year.

When brightest Mira has been known to exceed Aldebaran in brilliance; sometimes it rises only to about the fourth magnitude, and three centuries ago it once remained invisible to the eye for no less than four years. The interval of time elapsing between two successive outpourings of its light also varies irregularly to the extent sometimes of so much as twenty-five days. The causes of these irregularities and indeed even the cause of the remarkable periodic increase in the light and heat of this distant sun, are wholly unknown to us.

The November Shooting Stars. It is during the early mornings of November 14 and 15 that the Leonids, or November shooting stars, are to be looked for. Since the thickest part of the great stream has passed far beyond the orbit of the earth, however, a brilliant display must not be expected. If after midnight the observer will turn toward the northeast and fix his attention upon the western border of the constellation Leo, he will at intervals of every few minutes see a bluish, very emerge from the sun's rays until December 17.

Venus is seen as a wonderfully brilliant object low in the southwest for about two hours after sunset. On November 8 it attains its greatest distance south of the equator of the sky, being then no less than three degrees south of the Winter Solstice or lowest point of the heavens ever attained by our sun. It is approaching the earth and hence

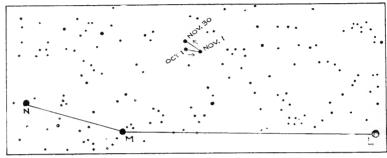


Figure 2.  $\Lambda$  small portion of Fig. 1, enlarged to show the position and motion of the planet Uranus,

swiftly moving "star" dart outward from a point near the upper edge of the blade of the Sickle, move in any direction over the face of the sky and then suddenly disappear.

A less well-known, but what will probably this year prove to be an even more interesting shower, is that of the Taurids. These are to be looked for on the evenings of November 21 and 22; they are slow moving, yellowish, shooting stars which move outward in all directions from a point a little above and to the right of Aldebaran (from the point S of Fig. 1) and it is said that fireballs are frequently seen among them.

As most of our readers doubtless know, it is impossible that these so-called shooting stars should be real stars or suns; they are caused by the collision of our earth with great streams of meteoric particles, each particle being burnt up as it ploughs through our atmosphere owing to the great friction to which it is subjected.

## \* \* \* \* \* The Planets in November.

Mercury is invisible throughout the month. It enters the evening sky on November 2, but does not reach its greatest distance east of the sun and so

continually growing brighter. Its brightness is eighty-three times that of a first magnitude star on November I, one hundred and ten times on November 30, and no less than one hundred and forty-four times on next January 5 when it will attain its greatest brilliancy.

Mars may be seen after midnight in the constellation Leo, a little to the left of Regulus. During the month it will move eastward across almost the entire constellation, being found a little way east of Chi Leonis on November 30. Its distance from us diminishes during this interval from one hundred and fifty-seven to one hundred and thirty-four millions of miles and its brightness increases from seven-tenths to ninetenths that of a first magnitude star. On November 30 it will be found almost exactly as bright as Aldebaran.

Jupiter is in excellent position for observation and will remain high in the eastern heavens throughout all the evenings of the month. Especially interesting phenomena of its satellites may be seen on the evenings and nights of November 2, 6, 8, 13, 15, 22, 24, 27 and 20.

Saturn will be found in the eastern borders of Cancer, a little to the left

of the Praesepe. It rises at about 10:30 P. M. on November 1, and at about 8:30 P. M. on November 30. It will remain throughout the winter in excellent position for observation.

The planet Uranus is still high enough in the sky in the early evening to be well observed. One who possesses a small telescope may readily locate this interesting world with the help of Figures 1 and 2. The three guiding stars, L, M, and N, are indicated equally on both maps, but Figure 2 contains every star so bright as the ninth magnitude, and hence this shows all stars which will be visible in a telescope of one inch aperture on a very clear night.

## An Effective Method of Studying the Stars.

The best method of studying the constellations is that which was first employed by the shepherds of old; that is, to lie on one's back and gaze into the heavens. By this method the range

in imagination, make the experiment. You will feel the sensation of floating in space, and after you have thus gazed at the skies for only a few minutes, you may imagine yourself on a comet or journeying by some similar conveyance through the infinite depths of space among the starry jewels that glitter there.

### Sunset Clouds.

The sunset clouds gazed in the lake,
At their reflection there,
And blushed more deeply than before,
To find themselves so fair.
—Emma Peirce.

Daphne.

A breath of Heaven wafted down,
To be a celestial dower,
And hidden, quite unknown to us,
Within the heart of a flower.
—Emma Peirce.

A child said to a butterfly, "You live but a day." "But a day," said the but-

terfly, "is a lifetime."—E. Scott O'Connor in "Tracings."



DR. BIGELOW AND THE ALOHA CLUB CLASS IN ASTRONOMY.

is good and there will be no neck ache. This method is employed by the editor of this magazine in teaching young people to know the constellations. In the accompanying illustration he is shown with a class of young ladies at the camping headquarters of the Aloha Club, Pike, New Hampshire. We heartily commend the method as the best for individual or for class use. If you have never tried lying on your back thus to leave Old Mother Earth

The modern botanical garden had its beginning in the old monastic garden's where the monks cultivated the "simples" for their primitive medical art.

Professor Hugo De Vries has transplanted his experimental garden from Amsterdam to Lunteren, where he will continue his work on the evening primroses. The Pirate of the Night Watches.

BY THE REVEREND MANLEY B. TOWNSEND,

NASHUA. NEW HAMPSHIRE.

When darkness falls over the earth, and the furtive furry folk come from their hiding places to feed and to play under cover of the friendly gloaming, the great horned owl leaves his secluded perch or some snug tree cavity, and goes forth to seek whom he may devour. Then the wild creatures have need of all their caution. Noiseless as drifting smoke, light as thistledown, terrible as fate, the midnight pirate drops upon his prey.

Two recent experiences have brought the hunting methods of the great horned owl to my attention. Recently a lady telephoned to ask if I would go into her pine grove and ascertain if possible, what had killed a rabbit whose mangled body she had found there. She was puzzled, as no tracks but those of the rabbit were in evidence. There were the remains of poor Peter Cottontail—just the skin and the bones. Nothing else about but rabbit tracks. Death seemed to have fallen from the skies. About the remains the snow was much With a stick I began to trampled. poke among the bones and the torn fur, and soon found what I was looking for —a wad or pellet about two inches long. Breaking it open I saw in the interior numerous bones of small mammals and one mouse skull, all wadded together by the rodent's fur, or the fur of several rodents. Nothing but a great horned owl could have left that pellet, and the mystery was explained. Owls swallow their prey,-bones, fur and all. stomach extracts every particle of nourishment, and the refuse is automatically wadded into a great pellet and coughed up at the bird's convenience. Owl retreats are sometimes discovered by the presence of these pellets beneath their hiding places.

Last summer I had another interesting experience. It was on the shore of a lake in Maine. As we sat outside the camp door, enjoying the beauty and the stillness of the night, the intense silence was suddenly broken by a succession of piercing screams. Something by the lake shore was in agony. What was happening in the darkness? Only death throes could produce such agonizing screams. The wind was blowing directly toward us, and presently an overpowering, sickening odor assailed us. Now all was plain. A great horned owl had found a skunk, that fears nothing but the owl, unless it be a man, and had descended from above on his noiseless pinions. Snatching the victim from the ground, the scythe-like claws had pierced the tender vitals of his prey before poor Mephitis mephitica could bring his anti-aircraft gun to bear upon the terror. The next morning shed more light on the tragedy. The skunk had been digging at the hole in which we had buried the refuse fish heads and entrails, when the doom of the wild overtook him. Many skunks must fall victims to this owl. A great horned owl that was brought to me many years ago by a friend, I had mounted, though it was so rank with the smell of skunk that the taxidermist protested. Upon what prey the bird had fed was evident. Gradually the scent evaporated, but for a dozen or more years, if the room were closed for a few weeks, the odor could be detected on entering.

The Mountain.

With contour etched in softest tones, And shining, snowy crest, It floated on blue distances, An island of the blest.

-Emma Peirce.

Two different prehistoric peoples have left relics in Mammoth Cave, one a tribe of hunters, the other farmers.

### How I Collect and Study Shells.

BY LILLIAN DYER THOMPSON, CAMBRIDGE,
MASSACHUSETTS.

For the past few weeks I have been studying the habits of some shells that I have in captivity. Once I would not believe that shells are inhabited by living animals, but now I feel that I am fairly well acquainted for I have watched them eat, walk, lay eggs, swim and make additions to their homes.

I wanted to study both land and fresh-water shells, so I bought two pans from the five and ten cent store. One was the largest roasting pan that they had, and the other was as long as the roasting pan was wide. I made a box as long and as wide as the roasting pan and six inches high. Then to prevent my shells from crawling out, I made a cover of wire netting which I fastened to a frame hinged to the box.

After putting the bigger pan in the box, I decided to make the pond first, so I put the smaller pan across one end of the bigger one and filled up any cracks with moss. In this pan I placed a shell that I had picked up on the beach, after I had washed it to remove any traces of salt which is injurious to snails. I also put in some fresh-water weeds with their roots so that they could help to purify the water and serve as food for the snails. Roots of grass will do for a short time but they decay and must be changed frequently. When I had partly filled the pan with water, my pond was ready for occupanev.

The home for the land shells was as easy to make, as I covered the remaining part of the bottom of the larger pan with earth, moss and bunches of grass containing the growing plantain. I also stuck in a few dead oak leaves (any kind of leaves will do) so that the shells could rest under them. I left several nooks between the pieces of moss as hiding places for the shells. Then I took a scallop shell (any flat shell will do) and filled it with corn meal and another shell with water. In amongst the moss I put a shell that had been thrown upon the beach, after I had washed it, so that my living animals could get lime from it to increase their own shells if necessary. As a

finishing touch I arranged a small branch so that the snails could climb from the moss to the roof.

The little mollusks (for such is the name given to the animals tenanting the shells) are not very particular. I have found, about their food. eniov their corn meal immensely, and also like lettuce, cabbage and plantain leaves as well as an occasional carrot. As I live in a place where land shells are not abundant (because there is so little limestone formation that they cannot make shells) I have had to depend largely on friends for my specimens. Never send shells by mail in a tin box, glass bottle or a tobacco box, for they cannot breathe and the fumes of tobacco kill them. The only safe way in which to send them is in either a pasteboard or a wooden box with some green leaves or grass.

If you live near a body of water you will find some shells: no matter whether it is a lake, a pond, a river or a brook, shell life is sure to be there. Turn over every leaf, stick or blade of grass, whether floating or on the bottom, and every stone and you will find some form of shell life. If you take along a fine meshed skimmer and with it scoop up some of the muddy or sandy bottom and wash it by gently shaking the skimmer in the water, keeping the top above the surface to prevent anything from being washed overboard, you are sure to find shells. These will range from one millimeter in length to an inch or more. Look along the banks and near the water's edge where the stream is running fairly swiftly and the bottom is of gravel and vou may see shiny shells lying around. These dead shells have been dug up by muskrats when the shells contained living animals, and have been eaten by them. Look more closely in the brook and see if you do not see little black objects protruding from the sand. Pick them up with your hands or with the skimmer and you will find that they are living shells.

No matter how little limestone is in your neighborhood, you are certain to find some land shells. If you are patient and look carefully you will be doubly rewarded by finding the most beautiful little shells imaginable!

Never, however, waste time in evergreen woods or in any places that have recently been burned, but look under the bark or decaying logs, under the logs themselves, under fallen leaves, loose bark on the grass and all sticks You may find shells on stones or leaves, or walking on some log, stone, stick or leaf. Where the earth is very rich near a tree, gather some in vour skimmer and in the fine stuff that falls through you will find many minute shells. This earth mould can be taken home and dried and picked over when you have time. Be sure to put the name of the locality and the date in with each lot of shells or earth mould you take, as both will be important factors when you begin to name your specimens and in the collection. I also have found it wise to state where the specimen was found, whether on the bark or under a leaf or elsewhere.

In case you would like to collect shells but do not want to keep them alive, I can tell vou a little about cleaning them. The way in which I clean single shells is to put them in boiling water for a few moments until they pull easily. To "pull" or remove the animal, all you need to do is to take hold of it with a pin or a pair of forceps and it will come out readily if it has been cooked enough. As the liver is at the tip end of the shell the animal should be pulled carefully so as not to break that organ. Two minutes is the very longest time that one should ever cook a shell. I have never cooked one for more than a minute. Large marine shells require more cooking. If there is a horny door (operculum) on the animal, this must be detached and put in the opening of the shell and kept in place with raw cotton. Any univalve that is too small to be pulled may be dropped in alcohol for a few days, and then the animal will be so saturated with alcohol that it will dry up without smelling. All bivalves (two shells united like those of a clam) may be cleaned by putting them in boiling water until they gape, when the muscles may be cut and the animal removed. The shells must be closed together again and tied until they are perfectly dry. I usually leave mine for at least a week. With each specimen write a label with the locality, the date of collection, on what it was found or under what and by whom. Then the shell may be placed with others until it can be named and put in the collection.

# When a Century Plant Could Attract a Crowd.

Times have changed in the last sixty years. The hum of the moving picture machine and the whir of the limousine are heard everywhere. Think nowadays of offering as a startling attraction a century plant, no matter how large. with tickets at twenty-five cents apiece. Possibly some would even now go to see it. Through the courtesy of Mr. H. E. Deats of Flemington, New Jersey. we have been favored with a handbill making an announcement of the kind at Ogdensburg, New York, in 1856. Mr. Deats writes, "May be a subject for a sermon." There surely is a sermon in that handbill, but it must be so evident to every appreciative reader of The GUIDE TO NATURE that we will leave each one to preach it for himself. The editor wrote to several elderly residents of Ogdensburg for information in regard to the exhibition, and several report that the family that had the plant is now extinct. Perhaps the most interesting information on the subject came from Louis Hasbrouck. writes that he was sixteen years old at the time and says:

"Mr. Henry Van Rensselear had a large greenhouse attached to his residence and in it was a century plant. When it was ready to bloom, Mr. Van Rensselear gave public notice that if any of the citizens of Ogdensburg desired to see it, they might come up to his place and examine it. Some of my relatives took me, but all that I remember about it is that it was very large and reached to the roof of the building. I can tell you nothing more than this about the looks of the flower or of the plant. Mr. Van Rensselear's place was burned down a few years afterwards. and he removed to New York and probably some of his descendants are living in that city now. One of his sons became a Jesuit priest and was attached to a mission in New York. I have never heard of his death; probably you can learn what became of him. A few years ago I spent the winter in CaliRARE CURIOSITY!

# AGAVE AMERICANA CENTURY PLANT

18 NOW ON EXHIBITION NEAR THE

ST. LAWRENCE HOTEL, OGDENSBURGH, N. Y.

This rare plant, is indigenous to Mexico and Central America and comes to maturity

## ONLY ONCE IN A HUNDRED YEARS

When it runs up to a great height, puts forth a profusion of flowers, continues in blossom from two to three months, and then dies. In this climate, it can be raised in hothouses, only, where it is perfectly protected from the weather, and can be stimulated by artificial heat. Its flowering is an occurrence of such EXCEEDING RARTY, that thousands flock to witness its

# RARE EXHIBITION

From all parts of the country, multitudes travelling great distances for that purpose. The precise age of the present specimen is not known, but it must be nearly

# One Hundred Years Old

Having been in possession of the family of the late STEPHEN VAN RENSSELAER of Albany, since an early date, and in possession of Hon. HENRY VAN RENSSELAER of Ogdensburgh, twenty three years. It has been presented by the latter gentleman to the

# Young Mens' Association,

OF OGDENSBURGH, N. Y.

| For exhibition, in aid of its funds. The following is a brief description of its dimensions: |           |
|----------------------------------------------------------------------------------------------|-----------|
| Height,                                                                                      | .32 feet, |
| Circumference of trunk,                                                                      |           |
| Breadth of leaf at the trunk, average,                                                       |           |
| Length of leaf,                                                                              |           |
| Number of leaves,                                                                            | .100,     |
| Circumference of base of upright stem sustaining flowers,                                    | 2 feet,   |
| No. of blossom bearing branthes,                                                             | . 33      |
| Whole number of blossoms about,                                                              | 18,000.   |

It is worthy of remark, that the entire stem, which is twenty six feet long, has grown since the last days of March.

This is the only opportunity the present generation, in Northern New York, and Canada will ever have for witnessing an exhibition of such exceeding rarity, and no person should fail to avail himself of it. The Plant has been reared at great expense, and, has been removed with great are, and is on exhibition in a building 24 by 36 feet and 36 feet high, creeted and fitted up expressly for the purpose, and in the evening

## WILL BE BRILLIANTLY LIGHTED WITH GAS

Doors open from 5 A. M. till 10 P. M. Season Tickets 50 cents, Single Tickets 25 cents.

Tickets can be procured of the Treasurer, at the St. Lawrence Hotel, on board the Steamers, and at all principal business places in Ogdensburgh.

OGDENSBURGH JUNE 21, 1856.

de Monto

J. H. GUEST, Treasurer, S. FOOTE, Secretary.

fornia and saw a good many of the same plants there, but that they bloom only once in a century is a fiction; over there they bloom every eight or ten years."

Vicar General M. J. Lavelle, The Cathedral Rectory, New York City, in answer to my letter, reports that the family seems to be entirely extinct. And that in only about sixty years after they exhibited a plant a hundred years old!

### Salamander Pets.

Michigan City, Indiana.

To the Editor:

I think you may be interested to learn of the spotted salamanders we kept in the laboratory one winter in northwestern Illinois. Some half a dozen of the salamanders, which we were Amblystoma tigrinum, thought were brought into the laboratory in September, some having been found in cellars and others near ponds. They were put in a small wooden tank with seven small frogs about an inch and a half long.

One morning as I entered the laboratory, I heard the oddest little squeaky cry from the direction of the tank, and there was one of the salamanders starting to swallow a frog. No wonder the frog cried, though I had never dreamed before that they could make any sound but a croak. It took only a second to reach in and grab Mr. Salamander by the tail, and he was only too glad to drop his prey immediately. As we had no idea of letting the salamanders eat up our cunning little frogs, the salamanders were exiled to a pail of damp sand that happened to be near-by. They burrowed down into it, and there they spent the winter, just the little black nose being visible in the opening most of the time. Sometimes most of them were entirely buried under the sand. We dug them out occasionally, and they seemed quite as lively as when we captured them in the fall.

They ate earthworms greedily in a peculiar way, making a sudden grab at the worm and shaking it fiercely from side to side for a second or two before swallowing it. In the middle of the winter, as they were in a warm room all the time and not entirely dormant, I tried to feed them beefsteak. They wouldn't swallow it, so I resorted to forcible feeding, pushing the bits of steak down their throats with a pair of forceps until the involuntary muscles took charge of the swallowing. This was repeated two or three times during the winter.

Early in the spring we took them out to a small pond and let them go.

Another spring we found some salamander eggs in late February or early March, while ice still fringed the small pond, a pond entirely dry in summer. They were similar to frog's eggs, with black yolks imbedded in gelatinous material, but considerably larger and in masses only an inch and a half in diameter. In a few days the little tadpoles hatched out, slender, brown. shapeless things, a little over a quarter of an inch long, clinging to the outside of the egg. A few days later they developed tiny bunches of external gills and began to swim about actively. About the same time tiny spots appeared scattered over the body. They were longer and much more slender than frog tadpoles.

Some well-meaning, but misguided, person caused their death by feeding them an extra quantity of bread one Friday afternoon. The week-end was warm, and by Monday morning the bread had fermented, and the little tad-

poles were all dead.

Sincerely yours, HELEN A. SOUTHGATE.

### Salamanders are not Reptiles.

BY MR. G. T. K. NORTON, NEW YORK CITY.

On page 100 of the September issue of The Guide to Nature appears an account of a salamander, with one illustration. In the second sentence of the second paragraph the salamander is referred to as, "These reptiles seem to be," etc. I trust you will pardon my questioning the statement. Do not salamanders belong to the class Amphibia—lizards to Reptilia? Are not salamanders of the Order Urodela? believe salamanders are distinguished from the lizards by having a skin rather than scales. Is not the salamander pictured Plethodon glutinosus?

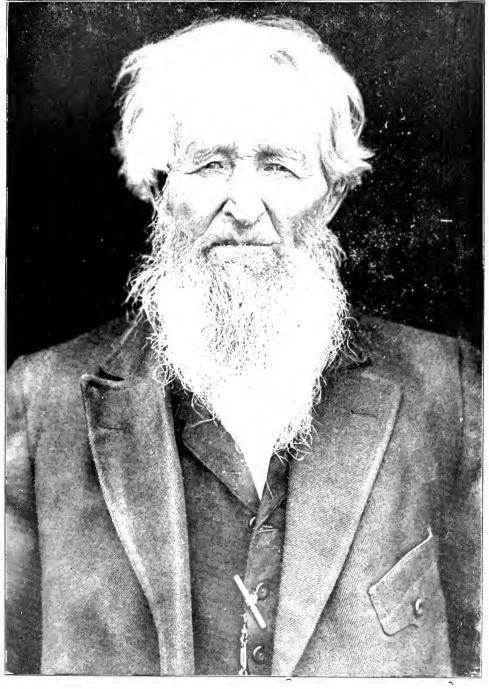
When I hear a man preach, I like to see him act as if he were fighting bees.

–Lincoln.

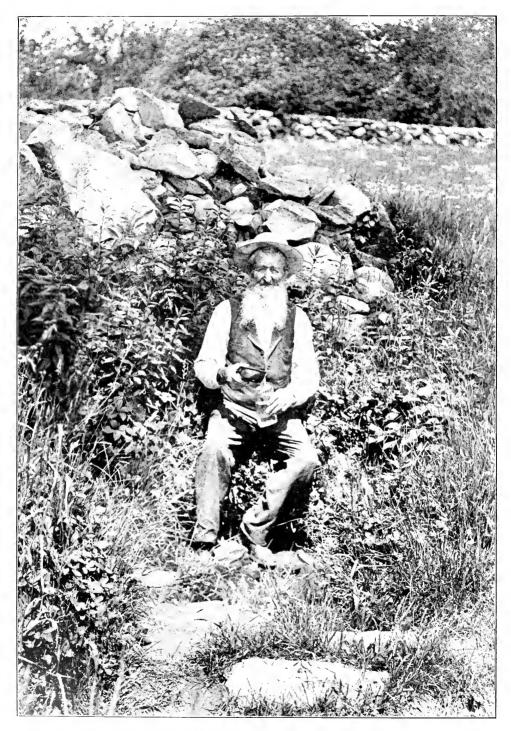
Judge John Clason is Dead.

Judge John Clason in his ninety-third year, The Agassiz Association lost a

Sustaining and Honorary Member and In the death, on October 10th, of a good friend. The local papers have told in detail of his long and honored career. It is enough for us to state that



JUDGE JOHN CLASON DIED OCTOBER 10, 1917, IN HIS NINETY-THIRD YEAR.



JUDGE CLASON AT HIS FAVORITE SPRING.

he celebrated the ninety-second anniversary of his birth on September 8th and at that time was enjoying fairly good health although somewhat weak-

ened by an attack of illness the year before. For a man of his years he was astonishingly active. A local paper thus characterizes him:

"Rugged in health, abrupt in speech, kind-hearted and loyal, the memory of this old bachelor-farmer who loved and served his native town, will not soon be forgotten."

He stood high in public esteem and in his earlier life was for several years Judge of Probate and a member of the Legislature. He was the founder of the Stamford Hospital and a contributor to various causes, the whole ambition of his life evidently being to do good to some one, to make some one happy.

From the point of view of The Ag-

ing of the wind was music to him. He made every foot of land on which he trod sacred to himself. He loved the fields as a companion. He knew the stone walls and could tell their history. He talked of the days when he was actively engaged in building them and told of his labors in making the stone foundation for his own house and related it not as a hardship but as a joy. He was a keen observer of birds and knew every one that frequented his farm. He also knew the insects, not merely from the helpful and injurious point of view but from real interest in



HE DEARLY LOVED HIS OXEN.

assiz Association he was an ideal Member in his spirit of service to others and in what one may term his "intensive simplicity" in nearness to nature. It was an inspiration to observe his fondness for the so-called simple things of the farm. To him his yoke of oxen was the very centre of all delightful forms of animal life. He loved them as one should love a human being. He talked with them, argued with them, praised them, and told his friends of their wonderful qualities and intelligence.

He was a keen observer of weather conditions and really enthusiastic over a sunrise or a sunset. Even the sighthem. He would listen to anything regarding them as if entertained by a marvelous tale, so keen was his interest in everything that pertained to Mother Nature's productions on his farm. His love for flowers, both from the aesthetic and utility point of view, greatly impressed any one who talked with him on these subjects.

His fondness for a certain spring of pure water was so intense that to the average person it was almost fanatical. He believed that pure water direct from Mother Earth contained the real elixir of life, and every day he visited the little spring on his farm and insisted upon



HE LOVED THE TREES AND FIELDS.

drinking no other water. It seems quite probable that this love of the simple life was, indeed, a great factor in prolonging the number of his years.

He was a typical gentleman of the old school, mellowed and grown even more kindly of heart with the passing years. His love for his fellow beings was of the highest. He never became crabbed nor miserly but was always genial, open-hearted and frank. The community has lost a citizen of high standard and The Agassiz Association has lost an ideal Member.





WINIFRED SACKVILLE STONER, JR., READ-ING TO THE "KIDDIES,"

ROGUES AND MIMICS. Sweetest Singers. By Winifred Sackville Stoner, Jr. Ann Arbor, Michigan: Educators Association.

This young member of The Agassiz Association knows how to interest her little friends and other small people everywhere. These articles are delightfully expressed and attractively illustrated. We cordially recommend them. The illustration of the author as she tells the stories to the children is especially attractive, and makes one desirous to become a member of the company in front of this young lecturer to hear what she is saying.

Human Nature. By George Scoville Hamlin. New York City: The Knickerbocker Press.

The teaching of the author is that through the union of religion and science, a fuller understanding may arise in regard to "Man's Place in Nature," and thus enable us consciously to use a law that will more fully care for the future well-being of humanity.

The graceful little gull-boats,
Afloat on the tranquil bay,
Will soon be spreading their pinions,
And swiftly soaring away.
—Emma Peirce.

#### Sonnet.

[On visiting the birthplace of William Cullen Bryant.]

BY HAROLD GORDON HAWKINS, WESTFIELD, MASS.

Majestic hills and towering fragrant pines—
These are the fittest monuments for him
Who told of forests, shadowy and dim,
And mighty hills, in genius prompted lines.
Soft on the land a golden splendor shines
As the red sun rests on a mountain's rim,
While tired Nature chants her evening hymn,
And twittering birds seek shelter in the
vines

With scenes like this fair Nature did embue The poet of these hills with silent awe And reverence for her majesty and power. And from companionship with her he drew A faith that only such a mind might draw, And give the world, to face Death's bitter hour.



WINIFRED SACKVILLE STONER, JR., MEMBER OF THE AA.





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### FASHIONS OF TO-DAY



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9531 Food Conservation Uniform 36, 40, 44 bust. Price 10 cents.

Every householder is interested in the question of conservation of food. Here is the costume accepted by the Hoover commission and which is to be worn by the women who have signed the pledge. For such use, it should be made of plain blue with white trimming. Here, it is worn by an active housewife and is made of plaid gingham with trimming of plain color. Since it will be in gingham with trimming of plain color. Since it will be in demand for general wear as well as by the signers in the pledge, that suggestion is a good one. It is a very smart, attractive looking costume. You can wear it as an apron, or you can wear it as a gown. The single button and buttonhole in the belt effect the closing, consequently, it is exceedingly easy to slip on and off. Women who find themselves compelled to do with less help than usual this season will find the apron you belt. season will find the apron valuable.

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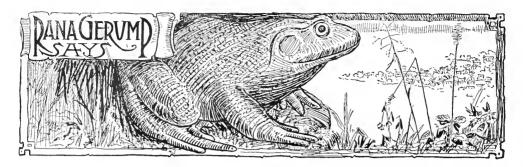
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### Little Japan.

This is a development in the Agassiz Grove chiefly for the use of parties that visit us only for the day. The Pavilion, the Serving House and the outdoor grills will easily accommodate one hundred and fifty people or more. Families, schools and churches find the facilities satisfactory although at present the place is only about half completed. We need the Rest Cottage, yet to be This will have the Japanese decoration contributed by Mr. Irving E. Raymond of A. A. Vantine & Company, New York City. The entire development takes its name of Little Japan from these decorations, the Japanese illuminated torii, Japanese evergreens, flowering cherries and other shrubs from Japan. In the name we also signify our intention to inculcate that sincere love of nature in all the simple grandeur so marked in the Japanese people and manifested in their cherry blossom celebrations, field tea parties and otherwise.

Up to the autumn of 1917, we have expended \$1,064.12 and have received in contributions \$838.00. To pay this deficit and to build and equip the Rest Cottage we need about \$1,000 more. This Rest Cottage will be used, as its name implies, mostly by women and children, but will have toilet facilities for boys and men. It will provide bedrooms for a few permanent guests and students. This completion of Little Japan is greatly needed.

For nearly a year the Pavilion has been used almost every week in the drilling of the Home Guards, and during the summer of 1917 it was in frequent use by all sorts of visiting parties. It has proved its worth and essentiality, not only as a community center, but as an efficient factor in "creating and increasing a knowledge and love of nature."

### An Attractive Shoe Store.

One of the most attractive shoe stores in this vicinity is that of John Phillips in Stamford, Connecticut. This is especially true since the making of the many interior changes including the addition of comfortable seats for the customers.

Very much in Mr. Phillips's favor is the fact that he is skilful and expert in selecting just the shoe proper for each customer. He seems to know, perhaps by intuition, perhaps by experience, but he seems to know what is adapted to each, and he takes pleasure in aiding the customer to make the right selection, and in the store there are an air and an aspect of cordiality that increases the customer's satisfaction.

### He Had Favorable Appreciation.

A man playing very badly on the piano turned to his friend and inquired. "What do you think of my execution?" The reply was, "I am in favor of it."

### **Nature Lovers are Camera Lovers**

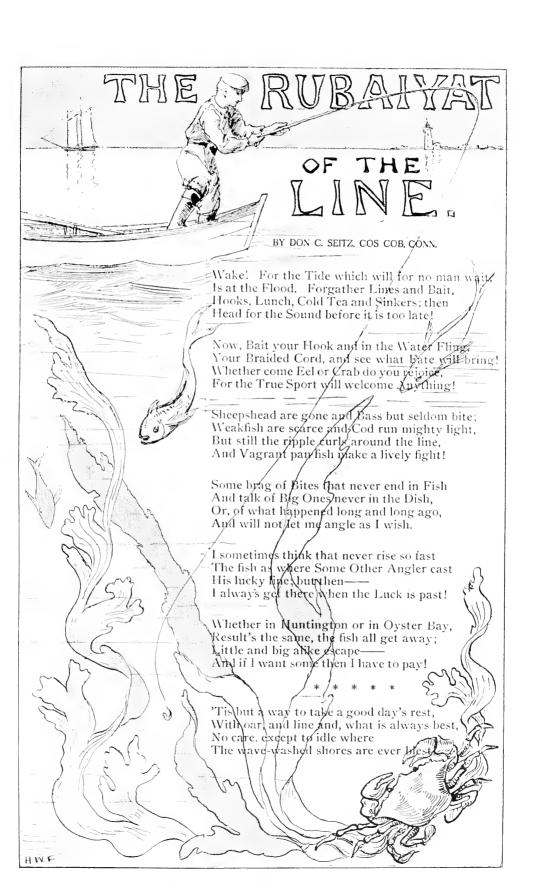
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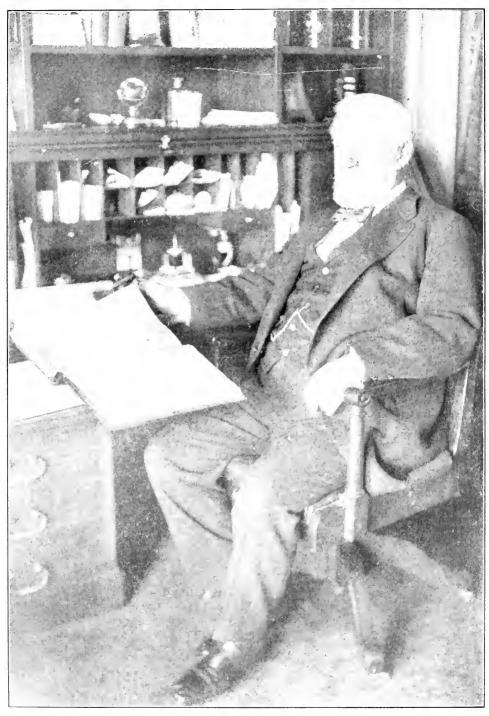
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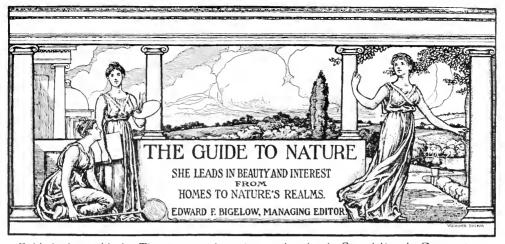
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COMMODORE F. C. BENELICT, INDIAN HARBOR, GREENWICH, CONNECTICUT, "White held of the sage, and soul of the boy"



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Volume X

DECEMBER, 1917

Number 7

## The New Hospital at Greenwich.

Commodore E. C. Benedict's Magnificent Gift.

The beautiful new Greenwich Hospital, erected and equipped through the munificent generosity of Commodore E. C. Benedict, is now in deed and in fact the property of the town of Greenwich and the Greenwich Hospital Association, the key and title having been formally and finally turned over to. President Edward Brush, of the Hospital Association, by Commodore Benedict, at an interesting function held in the Hospital building Sunday afternoon, October 14th. About 150 persons were present, invited guests of the Commodore, President Brush and offieial boards, to witness the simple but impressive ceremony, listen to the speeches of presentation and acceptance, and inspect the building, which is said to have cost about \$600,000.

The assembled company included many of the best-known people of Greenwich who are interested and active in the promotion of good works, and their expressions of admiration and approval of the new Hospital and its perfection of equipment were spontaneous and cordial.

The formalities of the affair consisted

of the delivering of the key to Commodore Benedict, by Thomas Hastings, the architect, in a brief but fitting speech; the transfer of the key to President Brush, by Commodore Benedict, with remarks appropriate to the occasion, which are printed elsewhere in this issue. Commodore Benedict's speech was received with intense and attentive interest, and elicited appreciative applause.

In accepting the key, President Brush spoke for the Hospital Association, as follows:

"Commodore Benedict, Ladies and Gentlemen: With this most propitious occasion, your responsibility is ended. From this time, our responsibility begins. If we can live up to our opportunity as you have done, we will be most happy.

"The limited space of this room, and your insistent modesty, have not made it possible for more of your friends and ours to be here today, in order, one and all, to express our heartfelt thanks for this magnificent gift.

"Our critics say that the American people lay too great stress on the finan-

cial problem of such a transaction as this. Possibly, in speaking of this as a magnificent gift, I may have thought of the many vouchers which you gave me the responsibility of approving for payment, (as a matter of fact, I can never forget them). But I beg to assure you that we will all remember, even with greater emphasis, the magnificent thought and spirit that inspired this gift. Can one think of aiding, even in a minor way, such an institution as this without being overcome with the kindliest spirit of compassion for suffering humanity, and being inspired with the hope that the longed for relief may here be found by many? know, have had this inspiration, and especially your hope has been that those, whose opportunities are few and with whom the means of relief are meager, may here find that medical and surgical skill is waiting and at the call of human needs, and that the comforts which can be extended by the kindly nurses and the cleanly bed are not withheld from them.

"In order that there should be no doubt as to safety, you have insisted that this hospital should be absolutely fire proof, and it has been your justifiable pride that, so far as building and equipment could make it, this hospital should be a model one, which would assist those inspired as you have been, and which they could well afford to

conv.

"It will rest with this Association, its medical and surgical staff, and its corps of nurses, to carry on the work which your generosity and kindly thought have made possible. I assure you that we realize the responsibility, and have made the firmest resolve that your desires in this regard shall be fully carried We believe that, not only the facilities of this institution, but its management, will be the pride of our town. and the comfort of many of its people. and also that it will attract the attention and patronage of the medical fraternity of the nearby city, with which many of us are so intimately connected.

"One other feature of your plans has appealed to me, personally, more than it would to many. There is hardly another person in this room, excepting you and myself, who knew the life of this town of fifty years ago. It has

very largely passed away, and another life, perhaps a broader life, has taken its place. But those old roots were strong, even if perhaps narrow. The love of the town and pride in its institutions were as great, if not even greater, than at the present time. It is no mere chance that this town is such a peculiarly beautiful residential community, the benefit of which is being enjoyed by many who never give a thought to the why and the wherefore of it all. It may have been narrow to insist that a gas plant should not be established here nearly fifty years ago. But no other manufacturing plants, with their polluting smoke and ugly smoke stacks, were able to take root The pride of the land-owning class made it impossible to establish anything here but homes. But there was a deep, strong character in these people. How else could a congregation, made up entirely of farmers, not one of whom had ever employed an architect erect a church, employing the most reputable architect in the land and adorn it with one of the most strikingly beautiful spires to be found from the Atlantic to the Pacific Ocean. Yes. some of them mortgaged their farms to pay for this thing of esthetic beauty. It has seemed to me that many of today do not give due appreciation to the things and affairs of the past. If desiring to add something to the facilities of the town, they have ignored that which existed, and, in effect, have throttled the old in order to plant the new. instead of grafting the improved variety onto the roots which existed, you, in looking for a channel through which to make your gift to the town, took an existing organization, which you grafted and pruned, and broadened and made to absorb.

"Your modesty and good judgment did not call for a Benedict Hospital; you simply desired to make sure that the Greenwich Hospital should include all interest, and should extend its beneficent aid to all classes. Your insistence that the competition between two existing hospitals should cease was, in my opinion, one of the most valuable portions of your gift, and one which will bring a lasting benefit to the town A comforting thought, when a fear has arisen that the consolidation and sup-

pression of competition might be breaking the Sherman law, has been that, without a doubt, we could rely on you to bail us out, if arrested.

"And now, Commodore Benedict, without more words, we accept this wonderful gift with a due sense of the responsibility which is bestowed on this Association, and on the Town

We want to say God bless you. We congratulate you on the noble spirit which prompted this gift. We congratulate ourselves on being thought worthy to receive and administer it. Thank you."

A dedicatory prayer was offered by Rev. Dr. Carson, of the Presbyterian church.

## Commodore Benedict's Presentation Speech.

Delivered as He Handed Over the Key to the New Hospital to President Brush of the Hospital Association.

Mr. President, Ladies and Gentlemen:
It must be manifest to you that this is an occasion for deeds and not for words, but as I have been somewhat prominent in the construction of this building. I hope to be pardoned for occupying a few moments of your time in giving you a little story of my long residence here and some of the changes which have taken place during that period.

In 1840 my brother Henry, ten years older than I, married and had a little son. He desired to leave the city and looked all about for a country home. The New York and New Haven Railroad had just been completed. Having passed through here in his youth and remarked upon the natural beauties of the location, he concluded to come here and look it over. Being particularly anxious to know about its healthfulness, he did not go from door to door to inquire about it, but straight-way went to the little churchyard adjoining the Second Congregational Church, believing that the records on the tombstones giving the ages of the deceased would be a fair indication of the health of the town. The church was a dilapidated old wooden building, badly heated, with uncomfortable seats and its pulpit was reached by a stairway partly obscured by preposterous large wooden blocks, painted to look like marble.

The report on the tombstones decided the question of my brother settling in this little hamlet—as it was at that time.

From Obadiah Peck he bought the

celebrated Rev. Dr. Lewis Mansion, which the stage drivers on the Boston Post road pointed out, over a hundred vears ago, as the finest house between New York and New Haven. It was a square house with columns, wings and large panes of glass, which the rich wife of the minister had built for him, and the marble mantel in the parlor was imported from Italy. It is now in my den at Indian Harbor. The Lewis Mansion was torn down and a third building now occupies its site. Opposite thereto was the only store in town, subsequently kept by Mr. Brush, who was I think, the father of our president. It was a department store of the day. Besides being the post-office, it had on sale hardware, crockery, drygoods, castor oil, Brandreth's Pills and some other standard drugs and medicines the first appearance of such things in a store here.

And who were the other residents on what is now called Putnam Avenue, from Puts Hill to Colonel Tom Mead's?

On Puts Hill lived Dr. Darius Mead, the only physician in town and I think the father of Fred Mead, Sr. He lived to be about 85 years of age. Opposite him was the home of Reverend Mr. Yarrington, who died at the age of 85, and his widow, who died at about 90. Just a little westward and around the corner of what is now North street, lived Alvin Mead, who lived to be 85, and Solomon Mead, who died at 93. Proceeding westward along Putnam Avenue, on the right lived Mrs. Mandville, who knitted me a doily at the age of 102. Opposite her lived Fred Mead.

Sr., who died aged 82. Then came Reverend Mr. Hubbard, who built next to us and died at the age of 78, I believe. Next to him was Mark Banks, who died at the age of 93. Next came Mrs. Bancroft, who lived to be 85, and then Dr. Holly, who recently died at the age of 85. Just around in what is now Lafayette Place was another Dr. Mead, a successor to Darius, who lived to be about 85. Then came John Dayton, who lived

to be 84, and his widow, who lived to be 90. Then came Mr. Seaman Mead, who recently died at the early age of 72, while his father, located just west of him, lived to be 93. I furnish the ages attained by these persons to our present citizens to assure them that nature has done much to satisfy them of the salubrity of the town, and to our real estate brokers as good testimony for intending purchasers here. I have



COMMODORE E. C. BENEDICT HAS GENEROUSLY AND CORDIALLY OPENED WIDE THE FRONT DOOR OF A MAGNIFICENT HOSPITAL.

to be about the same age, and his wife who died aged 90. Next lived Mr. John Voorhis, who died at the age of 82. At this period I lived at the Maples, where the salubrity of the location accounts for my having nearly reached the age of 84. But I moved to Indian Harbor and have an old friend, Mr. Willard, who took my place at the Maples and still lives there at the age of 86. Opposite was Mr. Joseph Mead, who lived

named twenty-one persons. Their average age at death was 86 years. I knew them all.

Dr. Darius Mead was my brother's physician, from whom it was difficult to get a bill. At the end of five years he succeeded in doing so and the total amount was \$25. That was a time of big pills and little bills, since which we have had little pills and big bills.

Greenwich at that time was dis-

tinctly a Calvanistic and Puritanic set-It was not long after the Blue Laws of Connecticut were in existence (a copy of which is in my library), and Colonel Tom Mead's father was empowered to arrest anybody traveling on the Lord's day, who could not prove that he was on an errand of necessity or mercy. Similar bigotry manifested itself until recent years in legislation prohibiting the New Haven road from running trains on Sunday. Late one evening I sat out in front of my brother's place when a couple of very dear old ladies stopped and their senttle-bonnets made a parenthesis in their conversation. My brother was building a little billiard room adjoining our house. One dear old lady asked the other: "What is Mr. Benedict building here?" The other answered: "I really don't know but I hear'd tell it was a billiard room, or some other kind of a gambling house." If that was a gambling house. I wonder what those dear old souls would think of Mrs. Wetherell's princely gambling house which she has built for the young Christians of this town.

At this time some new forms of treating diseases were making their anpearance but the old school physicians said of them as did Tob (13th chapter. 4th verse:) "Ye are all physicians of no value." I think we are better off here today in that respect than he was. Some are like Luke—the good physician. In my rather extensive wanderings in different parts of the world, I have been very much impressed with the fact that to the Catholic Church Christianity owes the erection of that symbol of religion—the cross—in remote places not visited by any other While Protestants are apt to charge bigotry to the Catholics. I remember one incident in my travels showing that as early as 1853 they were not bigoted on the subject of medicine. Over one thousand miles up the Amazon we found a trading post where a Catholic priest, besides ministering to the spiritual wants of the tribes, practised homeopathy, which the natives were slow to believe in. There is much less bigotry among the cliental today than old school doctors like to see and I trust hereafter they may heed Paul's injunction (1st Thessalonians,

5th Chapter, 21st verse:) "Prove all things, hold fast that which is good." How can wisdom better be attained than by consultation among the best practioners of all schools and comparing results? We have also some political "heelers" in town who must not be permitted on the staff.

When I promised to contribute towards the erection of this building, there were many friends who desired to have it called the Benedict Hospital. I protested at once, and still do so. This is not my hospital nor any other person's hospital. It is everybody's hospital, particularly the poor, who must not hesitate at any future time to claim its services.

This month is full of anniversaries in my life. My sign will have been up in Wall Street sixty years on the 26th of this month. My former neighbor, R. M. Bruce, was my first customer and remained one until he died. The 6th instant was the 58th anniversary of my marriage. The 9th instant was the 45th anniversary of my partnership with Roswell P. Flower, who afterwards became governor of the state of New Vork and founder of the Flower Hospital 12 years ago. I am the only survivor of the original board of twenty trustees. It is 45 years since I assisted in raising funds for the New York Opthalmic Hospital, when I was made a trustee and treasurer and am the only survivor of the original board of seventeen. Realizing that charity should begin at home, yet not end there, I turned my attention to what is before you. All physicians will agree that the sick and the injured should be protected from shock, as far as possible. There is a natural recoil from being taken to a hospital, so, on their way here I wanted them to have their first glance at this hospital a pleasing one in its outward appearance, in which I am told I have succeeded, thanks to Mr. Hastings: and no matter what preference the suffering one may have as to treatment, he should find here a physician fitted to his preference. And today is another eventful and joyous October day to me.

I now take opportunity, in conclusion, to ask those present who will be charged with the administration of this hospital whether they are fully in ac-

cord with my wishes and our Constitution and By-Laws in regard to the absolute banishment of bigotry of every form, as far as possible, in its administration? Not hearing any opposition, I take it silence gives consent.

Finally, I have two requests to make. Placed in some conspicuous position within these doors. I would have a tablet inserted with Paul's injunction: "Prove all things, hold fast that which is good." I should also like to have permission to have inserted somewhere a tablet stating that I have constructed this building in memory of my dear wife, Sarah Hart Benedict. She lived here for about 53 years, was very well known among the poor people and those who knew her best can testify that she spent her whole time in making others happy and had to die to cause a tear.

And now, Mr. President, I take great pleasure in handing you the key to this edifice—as a token of my gift.

# \* \* \* \* \* \* Postscript.

I did not say in my little address all I would like to have said and after having finished it occurs to me that I spoke of Puritanism too harshly. I am one of the senior members of the New England Society and my attendance at annual dinners confirms my strong belief that from the characteristics of the Puritans this country derives its greatest strength in character and ability.

Returning to the subject of the Lewis mansion, after my brother moved in he invited my father to visit him. My father asked: "Why, Henry, isn't this the old Lewis mansion?" He said: "Yes it is." "At a meeting of the Presbytery in 1824 I was ordained to preach in front of that mantelpiece."

My father settled in Westport on the first of May, 1850. He received six hundred dollars and finally seven hundred dollars per annum. His friends said it was a very acceptable Gospel at the price.

My father left a little, white Horsehair trunk fastened with brass nails, in which were some sermons of which he approved in his later years, having torn up those he had preached against the Jews and Catholics in his earlier years.

Stationery was expensive scarce, so we all saved scraps of paper not written upon and these my father used in writing sermons or headings of discourses. Among his papers I found he had used the back of Deacon Solomon G. Taylor's receipted shoe bill. It was a six months' bill for a family of eight and amounted to three dollars and ninety-four cents. course, it contained only the headings of a sermon condensed in some of his hieroglyphic, and I suppose it is the only piece of paper in existence, both sides of which were dedicated to the saving of souls.

Beginning when I was eight years of age, it was my duty to make the matches for the family. With my new ten cent pocketknife I went to Staple's Lumber Yard for little pieces of pine, and having got little slivers therefrom melted sulphur and dipped the slivers therein. The flint and steel had to be kept in good order as well as the tinder box, and failing to provide these matches I was forced to go out to some neighbor early in the cold, and sometimes snow, to get a shovelful of live coals with which to start my fire.

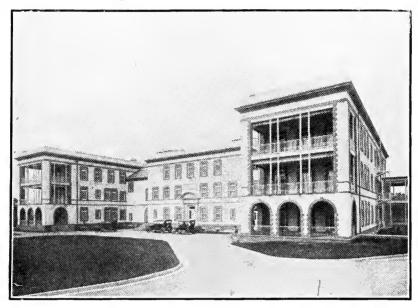
This penknife was one of three conspicuous toys I had, the other two being a ten cent kaleidoscope and a fifteen cent Noah's ark with its passengers. My lifelong fondness for yachting, which began at that age, induced me to put the ark in a pan of water and it soon became shipwrecked. But the passengers were saved, in rather a demoralized condition. Shem's wife being stuck to an elephant and the others of the family glued to the animals.

Now I would not exchange my recollections of that frugal bringing up for the collections of the wide financial vicissitudes that have since entered into my career."

The inspection of the building, by the guests, followed these ceremonies, and many were the expressions of delight called forth by the completeness and perfection of its appointments in every department.

The main structure, three stories high, 300 feet long and averaging 130

feet deep, and the half-dozen or more detached buildings, are built upon land purchased by Commodore Benedict from the Rockefellers, and the rear view shown in a picture printed heresmooth and capacious walks and drives, contains nothing at all suggestive of the rough and rocky condition that obtained before the preparatory process began, which required almost intermi-



THE NEW HOSPITAL-FRONT VIEW.



THE NEW HOSPITAL-REAR VIEW.

with, will convey an adequate idea of the tremendous amount of work entailed in preparing the ground for the purposes of the undertaking. The front view showing the velvety lawns and nable rock blasting and excavating on the one side, and filling and terracing on the other.

Work on the main building began in 1915, under the superintendency of

A. W. Lockwood, of Greenwich, who has been "on the job" from the start until the present time, and who is still supervising the "finishing touches." Mr. Lockwood is looking after the interests of both Commodore Benedict and the constructing firm of Cauldwell-Wingate Company, of New York.

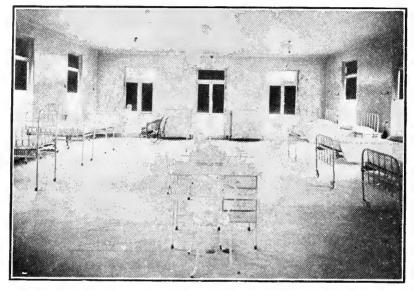
In the rear of the main building, as shown in the cut, are the power house, laundry, illuminating plant, auto garevery convenience being provided for its convenient and sanitary handling.

But the particularly noteworthy feature of the institution is the scientific equipment of its laboratory and the convenience of its domestic economy.

A pharmacy department 42 feet long contains all the essentials of a first class

drug store.

The operating rooms are outfitted with the latest and most approved sci-



ONE OF THE WARDS IN THE NEW HOSPITAL.

This cut and the two on the previous page are by courtesy of the "Greenwich News and Graphic."

age, heating plant containing four large boilers each 30 feet long—all equipped with the most up-to-date appliances with special reference to convenience and security.

The buildings are constructed principally of re-enforced concrete and Davis salt-glazed tile, there being only eleven tons of steel in the entire building. They are absolutely fireproof—so much so that no fire insurance is deemed necessary. Practically the only material in the whole outfit that could possibly burn are the doors and the stair banisters. The exteriors are of stucco, with brick trimmings.

The wings of the main building contain the sun parlors, of which there are ten, to be enclosed in glass; on the lower floors the kitchens, a large nurses' lecture room, and the "morgue" and "maternity room." Other essentials include the "butcher shop"—meat being bought at wholesale, in bulk, and

entific appliances and sanitary equipment.

There are six "wards," each containing twelve beds of the most modern design, and all perfectly ventilated and supplied with the best devices for lighting and other essential equipment for the comfort of the patients.

In all, there are about 90 beds at present in the hospital, including those in the private rooms. And not a single bell to summon a nurse—all signal devices being in the form of electric lights, which have the virtue of being effective without the disturbing element of noise. All rooms are equipped with ventilating device whereby the bad air is expelled by electric fans.

Electricity plays a conspicuous part in the economy of the Hospital. It operates the machinery of the laundry; performs all the labor of the kitchen, in the way of mixing the dough for the bakery department, peeling the vegetables, etc., and operating the icemaking machinery, refrigerating plants, cooking ranges, etc., and the control of the two diet kitchens on each floor.

An interesting feature is the electric control of the two push-button elevators, which require no "elevator boys;" the passenger desiring to go up or down simply pushes the button in the wall beside the elevator entrance, which automatically brings the elevator to his service, no matter at which floor it may happen to be anchored; the passenger enters, pushes the button indicating the floor at which he wishes to alight, and the elevator ascends or descends accordingly, and stops automatically at the floor indicated, whether it be in the basement or the top story.

There are four electric dumb-waiters in the establishment, and six hand dumb-waiters, affording adequate dumb waiter service at any time of the day or night.

# Commodore Benedict and the New Hospital.

One of the most noteworthy incidents in the recent history of Greenwich was the presentation, Sunday afternoon, October 14th, of the new Greenwich Hospital building, with its complete equipment, to the town and the Greenwich Hospital Association, by Commodore E. C. Benedict—a benefaction which will stand for generations to come as a monument to the generosity, the local patriotism, the public spirit and the philanthropy of the distinguished citizen whom Greenwich has long delighted to honor.

The speech in which he conveyed the gift, is not only an index to the man, but an irresistible reflection of his generous motives and an indisputable proof of the youthfulness of his age.

It breathes a broad and liberal interpretation of the philosophy of life. He owns up to nearly 84 years of existence, but talks like sixty—or less. There is a flavor of perpetual youth about the manner in which he deals with the old days of big pills and little bills, as opposed to the later days of big bills and little pills; his differentiation between the medical healers and the political heelers, etc.

And a tribute to the wholesomeness of his home region is conveyed in his enumeration of the friends of his early days, who lived to be all the way from 82 to 102 years of age.

There is valuable historical and biographical material, as well as humor and philosophy, in the brief and unassuming address; and through it all, the modesty and human element of the man shine forth. He disclaims any suggestion of personal credit for the princely benefaction he bestows upon his community, but craves the praiseworthy and pathetic privilege of having erected within its walls a tablet inscribed to the memory of his departed wife, whose life among our people, extending over a period of 53 years, was a benediction to the poor; who "spent her whole time making others happy," and who-what a happy phrase, and how full of meaning-"had to die to cause a tear."—Greenwich News and Graphic.

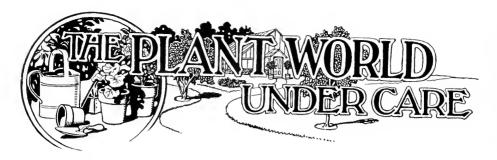
### Sunset.

BY GERTRUDE O. PALMER, LAWRENCE, KANSAS. The peace of evening settles o'er the town; The air is still and calm, as when a child, Tired by happy play, lies down to rest, And breathing softly, shuts his eyes in sleep. So Nature, with the mild, sweet breath of eye.

Reclines upon her bed of sunset light. That forms a background of celestial hue For every bush and tree and house and lawn. Tis then the Marter Painter dips His brush Into the wells of beauty and illumes The face of nature with the tints of Heaven.

### How Do Spiders Breathe?

There are in the spider's body two kinds of openings into which air enters —one lung slits leading to lung-like organs which consist of a series of flattened plates around which the air eirculates. These breathing sacs are two in number in some spiders, four in others, and are placed in the front part of the abdomen. The other air openings are similar to the breathing spiracles of insects, and lead into two branching tubes called tracheal tubes. The position of the tracheal spiracles differs. In some spiders these are just behind the lung slits; in others they are a short distance in front of the spinnerets.



### The Enormous Use of Christmas Trees.

BY C. R. TILLOTSON, ACTING CHIEF OF FOREST INVESTIGATIONS, WASHINGTON, D. C.

The United States consumes annually not less than four million Christmas trees, or about one to every four families. Railroad statistics corroborate this last estimate. Our annual consumption, even at this figure, equals the combined consumption of England, Scotland Wales, and is about 25 per cent. greater than that of Germany. Practically all conifers can be and are used as Christmas trees, but the most popular ones are the firs, spruces and, to a less extent, the pines and cedars. The use of one or another evergreen for this purpose depends frequently upon its accessibility, particularly in the mountainous sections of the country. Thus, for instance, in Colorado, where fir is abundant but grows at high altitudes and therefore is difficult to get out, the lodgepole pine, growing at the foot of the mountains, and the Douglas fir are more frequently used than the fir.

The fir is undoubtedly the Christmas tree par excellence, especially in the northwestern and Lake States, on account of its long, horizontally spreading, springy branches, and its deep green and fragrant foliage which persists longer than that of almost any other evergreen. In the northeastern and Lake States it is the balsam fir (Abies balsamea) that furnishes the bulk of the Christmas tree trade; in the South it is the Fraser fir (Abies fraseri) which figures as a Christmas tree but less frequently than other more accessible conifers, since the fir is confined exclusively to the tops of mountains throughout North Carolina and Tennessee. In Colorado and other Rocky Mountain States, fir, though abundant, is difficult of access and is used only sporadically, giving its place to lodgepole pine, Douglas fir, and occasionally to Engelmann spruce. On the Pacific Coast it is principally the white fir (Abies concolor) that is used as a Christmas tree.

The spruces vie with the firs in popularity as Christmas trees, but as a rule in the South and West they grow at high altitudes which makes them also difficult to get at, and are therefore substituted by less suitable but more accessible confers. Black spruce is the tree most seen in New York and Philadelphia. Throughout the States of Illinois and Ohio nurscrymen supply the local demand with nursery grown Norway spruce.

The pines are in great demand for Christmas trees when fir and spruce are not available, or are only to be had at a high price. Throughout Maryland, Virginia, and in Washington the scrub pine (*Pinus virginia*) finds a way into many homes for use in this capacity; while in southern Wyoming the lodgepole pine is almost the only species available for Christmas trees.

Hemlock, on account of its flexible, drooping branches, is not employed to a great extent as Christmas trees but large quantities of its branches are used in the manufacture of so-called "fancy green," comprising wreaths and other designs. Occasionally a few arborvitae (white cedar) are shipped among firs and spruces to New York and Philadelphia markets and used as Christmas trees.

Red cedar is not despised at this season when nothing better can be had—as in the treeless States; and, as a matter of fact, it is even used in such States as Tennessee and Pennsylvania. In California it is not uncommon to find incense cedar (*Libocedrus decurrens*) and redwood used as Christmas trees.

The center of the Christmas tree industry lies in the big cities of the East. New York City and the New England States consumes 1,500,000 trees, or nearly half of all the output. Nowhere does a Christmas tree furnish such enjoyment as in the North where its green foliage is so suggestive of summer during the black days of winter—and especially in hig

cities where evergreen trees can be seen

only in the parks.

Maine, New Hampshire, the Berkshire Hills in Massachusetts, the Adirondacks and the Catskills in New York are the sources of supply for New York, Philadelphia and Boston, and even for Baltimore and Washington. The swamps of Michigan, Wisconsin, and Minnesota furnish the markets of Chicago, St. Paul, and Minneapolis.

The sizes of Christmas trees vary from five to thirty-five feet in height; usually short-jointed, stocky trees with perfect whorls of branches at the base of each annual growth are the most sought for. The sale price varies, being dependent upon the demand and supply. Ordinarily small trees 5 to 6 feet tall are sold for 25 cents in the city markets, while a tree from 6 to 10 feet high brings a dollar or more, according to its symmetry. Large, shapely trees are sold in New York City at from \$5 to \$30 apiece, and trees 35 feet high bring as much as \$35 each. The average run of prices is from a minimum of 25 cents to a maximum of \$5 for a There is very little profit in the business for those who furnish the material. These are mostly farmers and owners of woodlots who look upon the trees as a gift of nature, and in selling them, consider only the labor of cutting and hauling and not the labor and expense required to grow the trees. For trees which in the city bring 25 cents the farmers get about 5 cents or a stumpage of 2 cents. Trees sold in the city for \$1.50 apiece bring them only 15 cents. This, of course, refers only to the large cities, in small towns the demand is supplied by the farmers directly, who cut down the trees and peddle them from house to house. When the market is not glutted the dealers make large profits (200 to 300 per cent. on their outlay), but when the supply exceeds the demand they are apt to suffer losses and have been known to resort to the destruction of many thousands of trees in order to keep up the price. The work of cutting begins in October and trees that have grown in the open are preferred since they have large, symmetrical crowns. The cut trees are arranged according to sizes, their tops are wrapped with twine to save space and then tied up in bundles of from one to eight trees. They are then hauled to the railroad in hayracks and loaded on platform cars.

### The Farmers' War Responsibility.

BY MR. CLARENCE DUBOSE, DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

The war has given to the American farmer the greatest responsibility, the greatest privilege and the greatest task any man or any class of men have ever known.

The American farmer in large degree will determine the trend of human history for all time to come, because the enormous ultimate consequences of this conflict rest primarily upon the farmers' production of food and feed to sustain the fighting forces. They might fail even with an adequate food supply; without it they are certain to fail.

But in his field, far from the fury of battle, far from either the adventures or the horrors of the firing line, the American farmer will say whether autocracy or democracy shall rule the world during the seasons that are to come.

In a sense the war will be won or lost in the fields, gardens, orchards, pastures and hog lots of the American farmer.

The hope of the American citizen, not a farmer, also hinges upon adequate agricultural production. Our aeroplanes are useless, our guns are spiked and our rifles jammed, our shells are but as harmless baubles, if the farmerfails. This must be understood in all its grim force by every man, woman and child in America; by farmers and by those who are not farmers.

With food we can win the war, Lack of food will lose the war.

Whether or not we produce the food depends upon whether or not each and every individual farmer does his level best on his farm—produces its maximum.

### The Consumers' Part.

But the "agricultural problem" means not merely the production of foodstuffs and feedstuffs and live stock. It means the conservation of the food after it is produced. That puts the "agricultural problem" squarely up to every one from the man on a forty acre field to the man whose fertile lands run farther than he can see; from the tenement cave-dweller to the occupant of the costliest mansion.

The agricultural problem today means to every American, and indeed to every civilized person on earth, simply whether he shall, when this strife ends, be a free person in a free land or whether he shall be bossed from Berlin.

That is the precise interest that you, now reading these lines, have in the agricultural problem in America today. You may have been a farmer all your life or you may not know the difference between a straight furrow and a threshing machine—no matter what your condition may be, one of the two divisions of the agricultural problem is yours; to produce food or to conserve food.

Many people have thought of the war as "far away," as a remote, impersonal thing, a sort of dreadful night-mare, but not as a spectre menacing our immediate persons and property. Our appreciation of the actuality is more poignant now, with our own flesh and blood upon the firing line. That firing line is in France today. It will come to America if the farmer fails.

No matter what course military strategy may take, the final battle-field of the war is already fixed. The Waterloo of the Prussian autocrat and all he stands for, or the Waterloo of American liberty—the end of autocracy or the end of democracy—the end of Prussianism or the end of freedom—will be wrought on the battlefield of the American farm—every American farm.

### Another Battlefield.

But even victory there will not avail if we lose in another equally fateful battlefield—the American kitchen. If we produce to the limit of farm resources and energies and do not conserve what we produce we may lose by waste.

No conceivable responsibility could be more grave, no privilege more proud, no opportunity more rich for significant service than the American farmer has today. The war has sounded a call to duty to every individual throughout civilization. The course of the individual life is not now to be considered in terms of self. The question dominating every individual is for what service can he be used—what can he best do to help win the war. To some the call comes to march away with uniform and gun, to some it comes for the organiza-

tion and administration of parts of the great war machine—to the American farmer comes the call to feed the forces fighting for liberty. To every other man, woman and child comes the call to save.

### Spare the Laurel.

PUBLISHED BY REQUEST OF THE SOCIETY FOR THE PROTECTION OF NATIVE PLANTS, NEWBURY STREET, BOSTON, MASSACHUSETTS.

The mountain laurel is one of our most beautiful native shrubs, not only when covered with its wonderful masses of pink and white flowers in early summer but during the rest of the year on account of its rich foliage. As it is an evergreen it is a striking feature in the winter landscape.

Laurel is typical of our woods and pastures; to protect it from destruction should be our duty and pleasure. But its very beauty and charm induce cutting to an alarming extent. It is gathered extensively twice a year. In summer the flowers are taken for the decoration of church and home. In winter the inroads are even more exten ive and dangerous. Enormous quantities are then used for festoons, for wreaths, in the Christmas dressing of churches and the decoration of ballrooms. As it is then cold weather, the foliage keeps well and bears transportation to a distance, so that the quantity collected is only limited by the demand and the available material. It is to be noted that this cutting is all from wild growth, not from plants grown for this purpose, although the laurel is easily cuitivated.

The flowers are borne only upon the shoots of the previous year's growth. If these are cut, a year's flowering is lost. When looking at long festoons of laurel leaves, it is saddening to think of the great quantity of bloom that has been destroyed in this extravagant winter decoration.

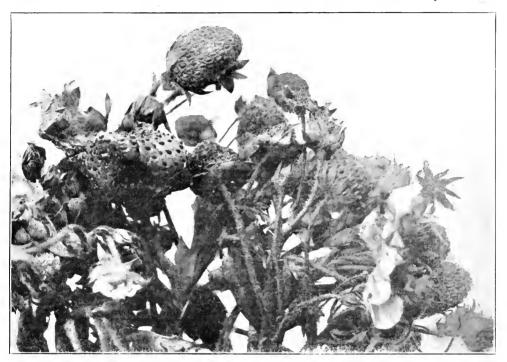
Care for the future often involves sacrifice in the present. Therefore can we not forego some decoration for the sake of preserving for the enjoyment of future generations the beauty of our woods, swamps and pastures where the laurel now grows?

### Strawberries in November-

We have been favored with a box of strawberries on the vines grown at Conneaut Lake, Pennsylvania. Miss Bessie L. Putnam, our contributor, says that in gathering them she went out with a broom and swept away a thick layer of snow which extends all over that part of the country for one hundred and fifty miles. Both blos-

then having almost incessant rains, they were dampened and placed in the cellar to await the time when the ground was dry enough to be put in proper condition. At the end of ten days it was discovered that they were badly mildewed, and I then dug a shallow trench between showers and temporarily 'mudded' them into it.

"Not until the middle of June could



STRAWPERRIES ON THE VINES RECEIVED AT ARCADIA FROM MISS PUTNAM IN NOVEMBER,

soms and berries were under the snow, and Miss Putnam states that she has no doubt but that when the snow melts there will be blossoms better than those she was able to find. The variety is known as the Progressive. Who has had similar experience with everbearing strawberries?

Miss Putnam writes:

"My experience with the everbearing strawberries covers but a single season, and that one of extremely adverse weather conditions, yet I am convinced that the good reports of them from all parts of the country are deserved.

"Early in May I received one hundred plants each of Americus, Superb and Progressive, all with large roots and in excellent condition. As we were

they be properly planted, and fully twenty-five per cent. were lost before this time came. Specialists direct that with spring planting no blossoms should be allowed to form before the middle of June or first of July, and under the conditions above noted we decided to pick all buds until August 1st. But the plants were so persistent both in throwing out runners and forming buds that about the middle of July it was concluded best to let them do as they pleased. And each plant usually showed three or more clusters of blossoms, and half matured and perfect fruit from that time until freezing weather about the middle of October.

"The fruit proved of good form, color and flavor—as fine as the berries of June. At present writing November

14th there are still numerous blossoms and immature fruits, though we have had at least two genuine snowstorms, with freezing nights most of the time for a month, mercury in one instance falling to ten degrees Fahr. True, the stems are now short, the blossoms hugging the earth, and little attempt is made to mature berries; but it proves that the plants are ready to do their part with half a chance.

"Of the three varieties, Superb gives promise of being the best late summer bearer, the Progressive the most productive in autumn. With these two varieties I believe that berries may be had every day during summer and autumn until the supply is cut short by

freezing weather."

### Potato Balls in West Virginia.

Littleton, West Virginia.

To the Editor:

In regard to the numerous articles on the potato seed balls, I wish to say that in my agriculture class this fail one of my pupils presented me with several of these balls—the first I ever saw. I had always thought that the potato balls were extinct, but my experience goes to confirm the statement in The Guide to Nature that they are still found in fair quantities in certain communities. So far as I can learn, however, these are the first to be found in West Virginia for some time.

Yours sincerely, CLEVELAND P. HICKMAN.

### The Lover.

BY HARRIET REYNOLDS, UPPER FALLS, MARYLAND.

The little green moss, the dear green moss.

That grows with the ferns by the river!

No one sees the pretty green moss No one looks at it ever.

They look at the river rushing away,
At the beautiful trees bending over;
I can always see the little green moss,
It is dear to the eyes of its lover.

The little green moss, the fresh green moss,

That grows where the brook is the fleetest!

There the phoebe has a nest for her babes.

There the woodthrush sings his sweetest.

The little green moss! The fairy green moss!

Where the waterfall plays a tune It weaves the robes that the moon elves wear

When they dance in the full of the moon.

The little green moss! The kind green moss!

Around a pool in the innermost forest.

There is a safe retreat for the weary feet

Of the hare, when the hunt is the hardest.

The little green moss, the lovely green moss,

With crimson berries dress'd. The mother partridge knows full well Where her brownies feast and rest.

The little green moss, the soft green moss.

In the pine woods cool and sweet!
No queen has a carpet so rich and so rare

As the one that it makes for my feet.

The little green moss! The evergreen moss!

When snowflakes are fast flying, Under the snow is an emerald glow, It is the little green moss undying.

The little green moss makes the wild woods sweeter,

And the grand blue sky above it! I thank my God that He made the green

And gave me the heart to love it.

### Overtones.

I heard a bird at break of day
Sing from the autumn trees
A song so mystical and calm,
So full of certainties,
No man, I think, could listen long
Except upon his knees.
Yet this was but a simple bird

Yet this was but a simple bird, Alone, among dead trees.

—William Alexander Percy in Contemporary Verse.



The Bigness of Little Things.

In the Welcome Reception Room I recently entertained a company of guests, and tried to point out the wide field filled by biology, preaching a little sermon from nature with the motto of The Agassiz Association, "Per naturam ad Deum," as my text. There seems to be no better form of nature than such tiny specimens as present aspects of great biological importance and also show a design in their structure that is not only beautiful but wonderful. Yet there was one person present who overlooked the tremendous importance of these little objects. She considered them as playthings, and me as a man whose time should be devoted to the big things of life, to the things of importance! She perceived not the bigness of the biological import but only the smallness of the small objects. On her face was a look of pity for the grown person that could fritter away his time upon such microscopic mat-

"Please tell me, do you find these little things very entertaining?" The inquiry was eminently proper. that I am in accord, but there are some things so absolutely proper, so trite, so bland, so ignorantly innocent, that they are capable of causing nervous prostration. After devoting a third of a century to the diligent study of microscopical matters, after erecting here at ARCADIA an equipment costing many hundreds of dollars, after portraving the wonders of the microscopical world, especially in their relation to the biggest affairs of human welfare and destiny, after having time and again reveled in this magical microscopical world, that bland and innocent tone came like a blow in the face, "Please tell me, do you find these little things very entertaining?" It affected my nerves, and perhaps in combination with something I had eaten it troubled my sleep. That night I was restless and my mind rambled in strange dreams. I dreamt that I attended a piano recital by a wonderful player—Paderewski perhaps. I joined with the audience in appreciative applause, and at the close of the performance I went forward with others to thank the player. I picked up a sheet of music that lay on the piano and pointing to a long run of sixteenth notes inquired, "Please tell me, do you find these little things very entertaining?" Now it was only a dream but there was a trapdoor on the stage. Mr. Paderewski fairly had a fit and the last I saw of him he was falling, falling, down, down far beyond that trapdoor in the hazy darkness of the depths. He never struck but I rolled over in bed and started in again.

In my dream I was young again, and was one of a throng attending a wedding. We saw the bride, beautiful and blushing, and the procession of bridesmaids and flower girls. The groom entered, and I heard the words, "Do you take this man for better for worse," and the trembling, loving response. I knew it as it can be known only by one who has known the birth and death of children, who has known the tremendous seriousness and joy of marriage, but in my dream I said, as I took the bride by the hand and gazed intently at the tiny band of gold, "Please tell me, do you find these little things very entertaining?" The groom, thinking me lacking in appreciation, grasped me at various parts of my clothing and threw me out of the window. When I landed on the ground I said as I awakened, "It seems as if I will not get any sleep to-night"

I readjusted my pillows, tried to get a cool and comfortable position for my arms and was in my dream once more. I saw a funeral procession. It wound around the corner of the road to the cemetery and climbed the hill. I can see the very post where our horse was hitched. I went with the crowd into the cemetery and standing near the grave watched the palibearers bring in the casket, lay the flowers one side and adjust the straps. The minister came forward with a little earth in his hand just ordinary everyday earth, but as he was about to say, "Earth to earth, ashes to ashes, dust to dust," I rushed forward and grabbed hun by the hand. "Hold on. Let me see what you have in your hand." Naturally he was a little surprised but he opened his hand and I gazed upon him and then gazed mysteriously upon the little particles of dirt in his hand. I searched my pockets for my lens and, looking intently on the particles of earth, I said, "Please tell me, do you find these little things very entertaining?"

Then I found myself in a padded cell of a lunatic asylum bound hand and foot as a dangerous maniac. struggled and of course that freed me from the tangle of the bedclothes and I was ready to start again. I could not bear the thought of being a maniac and began to philosophize and to wonder if insanity comes from a microbe. Then in my somnambulistic tour I came to Pasteur's laboratory. The great man was studying a microbe. Around him were the multitudes whose lives he had saved. However, I did not stop to look at the people but rushed to Pasteur and his microbe. "You big, big man, why do you fritter away your time in this way?" He exclaimed, "Look, look! I have found it. And now I can save thousands of lives and help the world to help itself." I had to look through his microscope a second time and even to rub my eyes before I could see anything, and even when I did see a tiny and transparent something I was almost in doubt as to whether I had seen it or not. But I hugged Pasteur and shouted joyfully: "At last I have found you. You come to my maniac cell, you crazy headed man." But still I seemed to be possessed by a delirum for I added, "Please tell me, do you find these little things very entertaining?" as things began to happen I heard some one calling, "Wake up! wake up! you must be lying in a cramped position to give such a yell as that."

It was only a series of painful dreams and a restless night. I hope I shall not

often have such nights. I should like to rid my brain of that awful memory of that perfectly proper question, that ignorantly innocent tone, "Please tell me, do you find these little things very entertaining?"

Four Years on the Campus without Knowing the Campus.

As we have recently published letters about the pitcher-shaped leaves of the ash, Mr. Frank B. Hopkins of North Salem, Indiana, thought he could supply us with specimens because he recalled such leaves as growing on an ash on the campus at Bloomington. He learned of one of the alumnae who was to visit the school, and requested her to get the leaves for him. He writes:

"I carefully mapped the campus and described the tree and the leaves, then rested in the blissful thought that a graduate of the school could find anything on the grounds. But alas! her mind had been filled with other and more sentimental things in her undergraduate days, for lo! she b-r-o-u-g-h-t me b-i-r-c-h!"

Now where can an expression be found to describe a circumstance like that? But the pitiful thing is that that alumna of Bloomington is far from being alone. Ask any graduate of almost any high school or college what is to be found on the campus, and it is doubtful whether he can mention one onehundredth part of the objects to be observed there. He may know of the things many thousand miles away, and vet have no cognizance of the things about his own home. The alumna is herself not so pitable as is the lamentable fact for which she stands. After four years in college and with membership in the faculty of another school. she did not know the leaf of the ash tree from that of the birch. But why should we deplore the fact? It may be duplicated and more than duplicated in almost any school.

Goldfish, reports Robert T. Hance of the University of Pennsylvania, are easily raised in aquaria from the egg.

Sow an act and reap a habit; sow a habit and reap a character; sow a character and reap a destiny.—Anonymous.

### The Heavens in December.

By Professor Eric Doolittle of the University of Pennsylvania.

By far the most striking star groups of the heavens are those which now fill the eastern sky. Even one who seldom looks upward and who hardly knows one star from another is apt to have his attention arrested by this beautiful display and to perhaps won-

The groups of Taurus, Orion and Gemini have now mounted high above the eastern horizon. In this region there also shine the golden Capella and the bluish Procyon, while the Greater Dog Star, Sirius, the greatest sun of all, is just emerging from below the

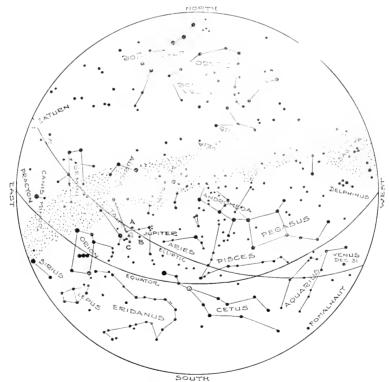


Figure 1. The Constellations at 9 P. M., December 1. (If facing south, hold the map upright. If facing east, hold East below. If facing west, hold West below. If facing north, hold map inverted.)

der why the stars seem to him so unusually bright, probably not at all knowing that the heavenly objects which shine upon these, the earliest of our winter evenings, are wholly different from the fainter stars which are to be seen on the evenings of summer.

ground. There is only wanting the bright group Leo, and when, toward the end of the month, this also enters our evening sky the brilliant train of winter constellations will be complete.

All of these bright stars will remain with us throughout the winter. It will

not be until toward the close of April that the western edge of Taurus will have reached the western horizon and the withdrawal of the bright winter groups from our evening heavens will begin.

The remarkable position of the planet Jupiter, almost in the center of Taurus

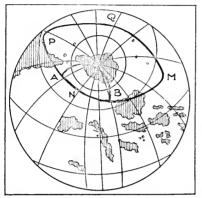


Figure 2. South Polar regions of the earth, showing the area within which the eclipse of the sun of December 14 will be visible.

and just above the Hyades, will afford the observer an unusually good opportunity for clearly seeing the motion of this slowly moving world. Though Jupiter moves slowly eastward in its great orbit and thus completes the entire circuit of the heavens in the course of twelve years, it is now "retrograding," or moving westward, among the stars. This apparent backward motion is caused by the fact that our earth, which is now between Jupiter and the sun, is moving eastward faster than the distant planet and so displacing it westward in the sky.

On December 1 the observer will see Jupiter at the position of A of Figure 1, wholly to the east of the Hyades, while by the end of the month it will have moved to the position B, wholly to the west of this group and almost midway between the Pleiades and the star at C. This backward motion will continue until next January 26, when a rapid eastward motion will begin.

## \* \* \* \* \* The Eclipses of December.

Two interesting eclipses will occur during the present month, one of the sun and one of the moon. These will make a total of no less than seven eclipses which have taken place during the year 1917, which is the greatest number that can occur in any one year.

The first December eclipse will be a so-called "Annular Eclipse" of the sun. This will be wholly invisible to us and can, in fact, only be seen by observers within the area M, N, P, Q of Figure 2. Throughout most of this region the black disk of the moon will be seen to move across and so cover a portion only of the bright disc of the sun; from all points along the line A, B however the center of the moon will be seen to move exactly across the center of the sun. At this time our satellite will be so far from the earth that it will not anpear sufficiently large to completely hide the sun. Even when the center of the moon is seen exactly upon the center of the sun, a narrow rim of the sun's disc will remain uncovered, thus encircling the black disc of the moon with a brilliant ring of light.

The second December eclipse will be a total eclipse of the moon. This may be viewed during the early morning hours of December 28 from all stations in North and South America and from Eastern Asia. Unfortunately, the eclipse occurs at a rather inconvenient hour; it will be necesary for the observer to remain up until long after midnight of December 27 in order to witness it, but the phenomena are so very interesting that he will be well repaid for his trouble.

The great shadow of the earth, which stretches out into space to a distance of 857,000 miles in a direction exactly opposite the sun, has a conical shape. From any point within this shadow cone the light of the sun will be cut off, the brilliant sun's disc being hidden as seen from this point by the opaque ball of the earth coming in front of it. The moon will plunge into this shadow and so be darkened on December 28, the center of the moon moving along the path M, N of Figure 3.

The moon's center will reach the position A and the eclipse begin on December 28 at 3.5.6 A. M. (Eastern standard time); it will reach the position B and the moon be most deeply immersed in the shadow at 4.46.18 A. M., and it will reach the point C and the eclipse will end at 6.27.24 A. M.

It will be noticed that even when the center of the moon is at B the moon is so far from the center of the shadow that this eclipse barely misses being only a partial one. The moon will, in fact, remain wholly immersed in the shadow for only sixteen minutes and thirty seconds. As much sunlight is usually bent within the shadow by refraction as it passes through the rim of air surrounding the earth, the upper portion of the moon will at this time fortunate that this planet has been for many months so very far below the equator that it could only be seen low in the southwestern sky. It moves upward quite rapidly during December, but as it also draws nearer the sun its time of setting will remain nearly constant.

Mars moves rapidly eastward during the mouth, passing from the eastern borders of Leo into the constellation Virgo. It rises a little to the north

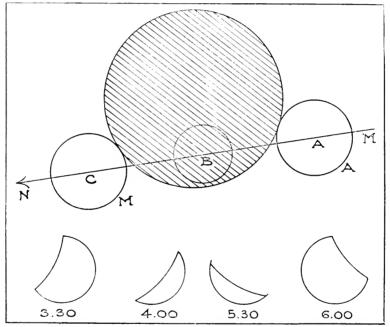


Figure 3. Passage of the moon through the earth's shadow on December 28. The lower figure shows the appearance of the partly eclipsed moon at various hours.

doubtless be far more darkened than the lower portion and the latter will very probably present an ever-changing reddish and greenish combination.

#### The Planets in December.

The planet Mercury will reach its greatest distance to the east of the sun's rays on the morning of December 17. For a few evenings before and after this date it may be seen shining in the twilight glow, very far toward the southwest, for somewhat more than one hour after sunset.

Venus, which reached its greatest eastern elongation on November 30, remains our very conspicuous evening star throughout the month. It is unof the east point of the horizon at about 11.30 P. M., but is not sufficiently high in the sky for satisfactory observation until well after midnight.

Jupiter remains the most brilliant object in the eastern heavens, riding high in the sky, in excellent position for observation. An interesting phenomenon of its satellites may be seen during the nights of December 1, 6, 8, 15, 17, 22, 24 and 31.

This month witnesses the entrance of the beautiful Saturn into our evening heavens. This planet, which, like Jupiter, is slowly retrograding, will be seen to rise at about 9 P. M. on December 1 and so early as 7 P. M. on December 31. Throughout the winter it will

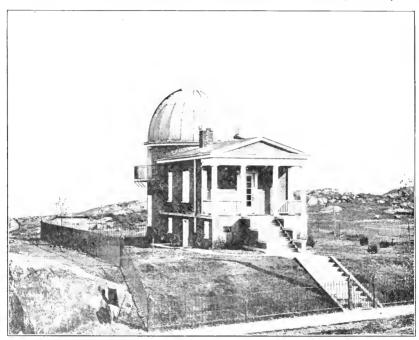
remain with us, a most interesting object for observation.

On December 22 at 4.46 A. M. (Eastern standard time), the sun will reach its lowest position in the heavens and at this instant winter will begin. This will also be the shortest day of the present year, this day being no less than five hours and thirty minutes shorter than the following night.

### Private Observatory at Duluth.

Mr. J. H. Darling has recently completed an observatory at Duluth. Minnesota, and installed a 9-inch refractor. This is for the owner's private Superior and 927 feet above sea level. It is not far from the business portion of the city and the harbor but the prevailing winds are such that smoke from the mills, elevators, etc., does not reach the observatory. Weather records show that an average of about one-third of the days are clear, one-third are cloudy, and one-third are partly cloudy. Air conditions appear to be fairly good as far as can be judged from a number of years use of a 312-inch telescope The electric lights of the city are liable to interfere some with the seeing, but probably not to a serious extent.

The observatory is located on city property, in an unimproved park. Per-



MR. DARLING'S OBSERVATORY AT DULUTH, MINNESOTA.

use, to view celestial objects and for an aid to his study of astronomy. It is his desire also to make this observatory a means of awakening an interest in this noble science among the people of his city and of contributing towards a popular knowledge of the subject. There has been, it is believed, no telescope in Duluth or its vicinity larger than 3½-inch and these with a tripod mounting and moved by hand, so that this larger and clock-driven instrument suitably housed, will go toward filling a want in the community.

The site is about 325 feet above Lake

mission was given to use this site on condition that the observatory should be open to the public at such times and under such conditions as the owner Might deem practical and advisable. The owner will endeavor to arrange in some way for the continued maintenance and use of the observatory after he has done with it, possibly by the High School or the State Normal School located in Duluth, or by the city direct, so that it will remain a permanent city institution. The cost of the observatory has been a little more than \$11,000—Popular Astronomy.

# What is Done at This Observatory. Duluth, Mich.

To the Editor:

Replying to your note of the 6th instant I take pleasure in saying that my nine-inch refractor is performing well and it appears to be a first class instrument both as to its optical parts and the mounting. My 19-foot revolving dome and the shutter are also operating well. In designing the dome I simplified the construction and reduced the weight of some of the members where I found it could be safely done, as compared with the design of several other steel domes that I examined, and made several improvements in details. It is also I believe as nearly weather-proof as is practically possible to build it. It has already passed through some storms of wind and rain and snow which gave it a crucial test.

Already I am realizing the pleasure and luxury of viewing the fine celestial objects with which the sky abounds. and the telescopic observations prove also a useful supplement to the printed information in standard treatises on astronomy, in my study of this great subject. Will add that I am not a professional astronomer but an engineer, and had given forty years of service to the Government in the work of surveys and harbor improvements up to the time of my voluntary retirement four years ago. Always fond of astronomy, I followed up the study as far as opportunity permitted although my exacting profession gave but little leisure for this. With a small telescope I did some observing in our back yard and to this primitive observatory with a tripod for the pier and the clear sky for my dome I occasionally invited neighbors to join with me in looking at planets, the moon and an occasional comet. Of course l tried to tell my visitors some of the most interesting facts regarding these objects, and these modest efforts seemed to be appreciated.

My new observatory is in fact but an enlargement of the simple plan just mentioned. I am giving to the public one week of consecutive evenings during each mouth, the time selected being when the moon is at its best phases for observation, which I find to be the most attractive object for the general

visitor. Planets, double stars and star clusters are also viewed as far as time permits during the two hours of the early evening given to the public. From fifteen to twenty persons are accommodated at one time, and dates are arranged by phone in advance. Usually the first part of the evening is given to an illustrated talk, explanatory of the objects which are to be viewed and including something of the broader general features of our solar and stellar systems. Further explanations are of course given in the telescope room. No charge is made for admission nor collection taken.

More than five hundred have visited by observatory since its opening last May. For many of these it was their first look through a telescope. The visitors have generally seemed very appreciative and pleased and quite a number evinced a keen interest in astronomy. Ouestions were asked and discussions followed. All this is gratifying to the owner and encourages the hope that this observatory will provide an efficient means of promoting a popular knowledge of this fascinating and inspiring science among our citizens.

J. H. Darling.

### The Sun Dav and the Star Day.

BY PROFESSOR MARY E. BYRD, LAWRENCE, KANSAS.

Those who are not confirmed stargazers are often puzzled by what seem erratic changes in the heavens. One watches, perhaps, the twin stars, Castor and Pollux, low in the east, near the time of rising; but a few weeks later they are seen much higher and further south, though the time of observing is the same as before. A young college girl has long kept a place in my memory because, early on a September evening, she insistently demanded to be shown Orion.

Why is it that the same constellation appears sometimes in one part of the sky, then in another, and then cannot be found at all?

Every one understands in a general way that the earth's rotation makes the stars as well as the sun appear to revolve about us. Not many, however, realize that their times of revolution differ, and yet it is this difference that gives the key to the puzzling appearances noted. Its conventional explanation is readily provided, but a simple observation helps wonderfully in putting meaning into it. But why should we have all our astronomy in pictures and in easy reading with thrills, and make not the slightest effort on our own part!

Let us go out of doors and look at the heavens for ourselves. Choose a conspicuous star in the south, not far above the horizon, and keep watch till it passes a fixed line of reference. Apparently the star moves westward, but this is in nowise due to any motion of its own; for we, unconscious of the earth's turning below, refer the motion to the stars above. The stars are so distant that they are for us practically fixed points of reference, so when our chosen star again reaches, on the next night, the same reference line, the earth has turned once on its axis. The interval required for this single complete turn is, by common agreement, taken as the sidereal or star day; but it is found to fall short of the sun day by about four minutes; that is, the interval measured by a common watch or clock lacks four minutes of twenty-four

Among hundreds who have, under the writer's direction, made proof of this by direct observation, one of the first was a student at Carleton College thirty years ago, and the record then written reads as follows:

"Northfield, Minn., L. Hall, north window. Monday, Feb. 28, 1887.

"The star chosen was Beta Ursae Majoris, and the middle bar of the window was taken as the reference line. I began watching at 7h. 15m. P. M., and at 7h. 22m. the star passed behind the window bar. On the following evening, Beta was observed from the same place [this is essentiall and at 7h. 17.5m. it passed again behind the same bar.

Hence, according to these observations, the sidereal day is 45 minutes shorter than the mean solar day."

If instead of a star in the north, as here, a southern star like Fomalhaut or Sirius is taken, the line of direction fixed by two plumb lines, and heed given to other details, results are often obtained differing only a second or two from the rigorously correct value of astronomers which makes the sidereal day shorter by 3m. 56s.

Then since one turn of the earth on its axis gives the star day, it must turn a little further to fill the full measure of the apparent solar day. Here again there is transfer of motion, for no one realizes directly that the earth is making an annual journey around the sun; so, as we move onward a little each day, the sun appears to advance among the stars, and in order to bring it a second time to the reference line, there is needed, in addition, the small fraction of a turn, taking nearly four minutes.

Both expressions, apparent solar day and mean solar day, have been used above, but unfortunately they are not the same, though why and how they differ is "another story." It suffices to say here that the average apparent solar day equals the unvarying mean day, and so either may be used in making comparison with the star day.

This comparison is the essential thing; for once the idea is really grasped that the stars revolve above us in the shorter day, it follows as a matter of course that any and every star crosses the fixed line of reference four minutes earlier, by watch time, on each succeeding night. Let the horizon be the reference line, then stars that appeared on the line at about ten o'clock on the first of the week, are at its close rising at half past nine. Watch, for example, the stars in the sword and belt of Orion. Early in October, in our latitude, they are, at eleven, just visible above the eastern horizon; but in the first week in November, they are rising at nine. And their rising and setting comes earlier and earlier till an evening is reached in the spring when Orion sets as the sun sets, and there follow nights with no Orion in the sky.

It is seen then that the same aspect of the heavens is found, not by observing at the same time but at a different time on different nights. The notion should be dispelled that capricious changes are taking place in the star world overhead. Some Extraordinary Hailstones.

TRANSLATION FROM L'ASTRONOMIE, BY
CHARLES NEVERS HOLMES, NEWTON, MASS.

"During the course of a violent storm, M. Quénisset, astronomer at the Observatory of Juvisy, now mobilized at Bourget, had the excellent idea of placing within the range of the photographic apparatus, very near some hailstones, a rule divided into centimètres and millimètres, which gives exactly their size, as we are able to

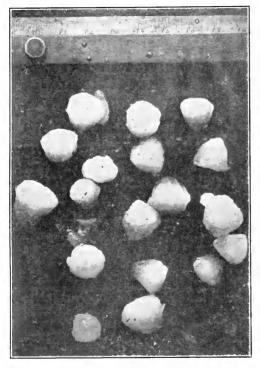


FIG. 109. THE LARGE HAILSTONES.

judge by the following photograph. (Fig. 109.) We observe that certain of these hailstones measure as much as almost 2 centimetres at their greatest diameter.

"There fall occasionally some larger hailstones. In his Report upon the Observations of the storms of 1915 within the departments of the Gironde and part of the Dordogne, M. F. Courty, astronomer at the Observatory of Bordeaux, points out the following facts:

"'On May 4th, 1915, in the Blayais, the inhabitants of Saint-Girons, Saint-Paul (East part) and Générac see their harvests totally destroyed. In this region the hailstones measure two to

four centimètres in diameter and are violently projected by the wind which is blowing a gale; many windows of the dwellings are broken.

" 'On the first of August, in the afternoon, between 4 and 7 o'clock, some stormy cloud-groups travel over the department of the Gironde in the normal direction South-West to North-East. The storm appears to have had its birth a little to the north-west of Villandraut and bestows upon the town a rather heavy rain, which commences with some very large drops; it arrives at Budos around a quarter past five; the hailstorm zone begins about a kilomètre in front of the paragrêle (a device to guard against hail), in the south-west direction. Some hailstones fall from 3 to 4 centimètres in diameter resembling big walnuts; the inhabitants have never seen them as large in the region; the sun is hidden by them as though by the snow; there is almost no wind. The half of the harvest standing is swept off. It is appropriate to point out that the last fall of serious hail at Budos had taken place in 1908 and the previous one twenty years before.

"'At Gabarnac, the hailstones also reach the size of big walnuts; upon the town they fall for about two minutes; the inhabitants do not remember having seen as equally large hailstones. On the higher ground, the devastations appear more considerable and can be valued at half of the harvest on some estates.

"'Within the hailstorm zone all the points are not equally affected, but the hailstones, more or less hard and large, present everywhere the same peculiarity. They appear under the aspect of fragments of transparent ice irregular in form, the greatest part flattened; some are polyhedral with sharp angles. Certain points, such as the domain 'du Vigneau' and all the slope between 'Yquem' and 'Le Boutōc,' seem The particularly maltreated. stones, or, to express it better the pieces of ice, of various forms, attain a size of about 10 eubic centimètres. Many dormer-windows are broken. At the Chateau d'Youem, the person who performs the firing of cfuséee grêlifuges is injured on the hand by the fall of a large sharp hailstone. The bolt falls upon the outbuildings of the chateau."



Our Greenwich Academy Chapters.

The officers of the Putnam Chapter for the current year are: President, Rita Ann Rheinfrank; Vice-President, Annie Louise Brush: Corresponding Secretary, Katherine Marsh; Treasurer, Elizabeth Anderson.

Of a recent visit of the two Chapters to ArcAdiA, the President of this

Chapter writes as follows:

"October the ninth was looked forward to by every girl in the Academy, for that was the day we were going to Arcada. At last it came and with rain, but even rain did not stop us from going and we sallied forth with happy hearts.

"When we arrived at Arc \DiA we were heartily greeted by Dr. Bigelow and invited to sit around the great fireplace while Dr. Bigelow talked to us-I will state briefly about the things he told and showed us. First he told us of the little building we were in; looking not unlike a chapel it represented the home, the church and the school And we were by this time feeling very congenial and cozy at Arc Adi A. then went way back to the time of Lincoln and Dr. Bigelow brought out nine shingles for some of the girls to draw on, and they drew three things, a plant, an animal and a rock, three of nature's first formations.

"After many, many more interesting things told us the new girls were made Members of The AA and received their buttons; 'Under the light of the Swiss Cross, holding the leaf of a living plant from the hands of I ouis Agassiz, may we be inspired by his life to study all nature with his enthusiasm.' Dr. Bigelow told us that Louis Agassiz found the plant and brought it to the United States from South America, till at last it has found its home with The Agassiz Association.

"After all the new girls had been made members the lights were turned out and we were shown many, many interesting things on the screen pertaining to nature. We saw some scenes of the life of the plants and animals at Arcadia, and of the different schools on their visits at Arcadia. One of our members was kind enough to give Dr. Bigelow a tiny snip of her hair and he put it on the screen powerfully magnified till each little hair looked indeed like an amber knitting needle.

"At last as a farewell Dr. Bigelow told us that if we were asked at home what we had done at Arcadia to tell our parents that we had played in a fly's eye, and he threw the reflection of the fly's eye powerfully magnified

on a table and we played in it.

"And I am sure I need not add that we all went away feeling that we had had a wonderful and thoroughly enjoyable day."

The recently elected officers of the Putnam Junior Chapter are: President, Elizabeth Drummond; Vice-President, Frances Gaines; Secretary, Elnora Grannis; Treasurer, Mary Pouch

Of the trip to ARC \DIA the secretary

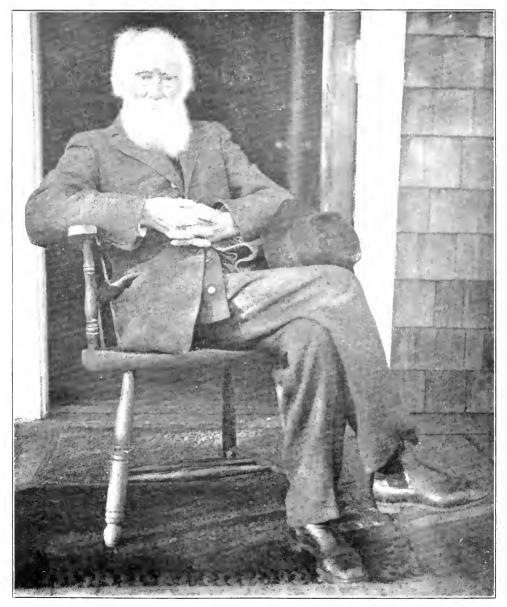
of this Chapter writes:

"On Tuesday all the girls of the Greenwich Academy above the third grade went to Sound Beach. We went in automobiles. We went to be initiated as Members of The AA. Dr. Bigelow met us at the door and told us to take off our wraps and sit by the fire. He talked to us about The AA and about its magic number, three. Then he gave us a shingle to draw on. We drew a rock; he showed us the rock. We drew a plant and any kind of an animal. Then he showed us some pictures on the screen and he told us about them. We went home at five o'clock."

### A Welcome Guest at ArcAdiA.

Our telephone bell rang on Sunday, November 4th, and we heard the gladly welcome words, "John Burroughs will be at ArcAddA this afternoon." The message was from his friend, John Shea, who had Mr. Burroughs as a guest. Mr. and Mrs. Shea arrived with their honored visitor, the eminent naturalist, early that afternoon, accompanied by Dr. Clara Barrus. It is superfluous to say that his visit was a de-

light and that it was a pleasure to note that he is eighty years young. The term old would be out of place in connection with one who has kept an enthusiasm of his life similar to that of Louis Agassiz. Mr. Burroughs in his mellowed age has lost not a bit of his enthusiastic love of nature and of fiving people, especially the young people. Nature does not grow old. The seasons come now as they did centuries ago and Mr. Burroughs has kept himself



TOTIX PURROUGHS AT THE DOOR OF OUR WELCOME RECEPTION ROOM.

so attuned with nature that he suggests thoughts of the present not of the past. He is ever young.

He knows so much about nature and has so clearly expressed his knowledge and with so much feeling and enthusiasm that the work at ArcAprA has been stimulated by his visit. He is unquestionably the greatest literary naturalist the world has ever known. He is beloved by thousands who know him only through his writings. Much greater is the love of those who have been privileged to know him personally.

We entertained him as best we could, chiefly by showing some of the tiny things of nature put on the screen by a projection microscope, and he expressed his pleasure. It was interesting to note that his frequent remarks were almost all inquiries. That is contrary to our usual experience. Here a skilled veteran naturalist was asking questions, simple questions, with all the charm and enthusiasm of a child, and he asked them not of a person but of nature. He studied carefully the images shown on the screen and wanted to know the signification of everything. It would have been an inspiration to every Member and friend of The Agassiz Association to have noted the Agassiz method adopted by this veteran naturalist, still in the spirit, as he always has been, of "Study Nature." Though he has taught thousands he is still a humble learner. Several guests from Stamford and Darien were present, and every one felt the greatness of the encyclopedic knowledge that Mr. Burroughs possesses, and of the gentle and charmingly childlike manner in which he still asks old Mother Nature what she only can tell him. We shall continue our work inspired by the fact that John Burroughs has been guest, friend and student at ArcAptA.

### William Almeron Terry.

William Almeron Terry died Wednesday morning, October 31st, at his home in Bristol, Connecticut, in his ninetieth year. He was born in Bristol, October 14, 1828, and spent nearly all his life in his native town. He was of a mechanical turn of mind and was specially interested in clock making, melo-

deon tuning and photography. "The Bristol Press" says:

"But it was as a naturalist and microscopist that Mr. Terry achieved special distinction and fame. His studies of algae, ferns, diatoms and desmids, especially diatoms, brought him into touch with scientific men the world over and he was recognized as an authority by them. His investigations in these fields were interesting and important and he derived a great deal of pleasure and satisfaction in the work. In a brief sketch of this character not more than a hint can be given of his activities, but it may be stated that his achievements were unusual."

He was an enthusiastic subscriber to The Guide to Nature. In recent years, however, the editor has not had much correspondence with him but in the days of "The Observer," which was edited by the present editor of this magazine in the 'nineties, Mr. Terry was a frequent contributor and correspondent. He contributed many skillfully made microscopical slides. His investigations and discoveries were recognized and accepted by the scientific men of Europe. He had an inter-The diatoms. national reputation. Cyclotella Terryana, Pleurosigma Terryanum and others, were named in his honor by European investigators. His death is a loss not only to his friends, but to the department of science that he cultivated and advanced. He was a gentleman, a kind, generous, learned gentleman. Personally, and on behalf of The Agassiz Association, we extend cordial sympathy to the members of the family and to the friends in their bereavement, but we congratulate them upon the fact that Mr. Terry in the fullness of his years had had a well spent life.

### Prairie Night.

BY GERTRUDE O. PALMER, LAWRENCE, KANSAS. Go out alone on the wind-swept prairie, Lie on her breast, and feel her mighty heart Beating 'neath thine; See the high regal glory

Of the stars in golden radiance o'er thee shine:

Then will thy soul know God and be His prophet;
Then will thy heart beat all in tune with

Then will thy spirit leap in glad reunion, And thy existence find its perfect bliss.

### Congressman Merritt.

At the special election of the 4th Congressional District of Connecticut, called by Governor Holcomb for a successor to the late Congressman E. I. Hill, Honorable Schuyler Merritt of Stamford, Connecticut, was elected.

Just at this particular time the nation, the state and the district are to be congratulated upon this election, be-



CONGRESSMAN MERRITT.

cause Congressman Merritt is exactly the type of man that should participate in the direction of governmental affairs at Washington. Though a Republican in politics, he is not partisan and will strongly support our President in the national crisis. His election brings jov to every American patriot everywhere.

Congressman Merritt is known locally as a man of the highest type of integrity and efficiency, a sound financier, a good citizen, an approachable and social man with kindly good will for all classes of people, and a thorough scholar interested in educational, charitable and religious work. He is the Vice-President of The Yale & Towne Manufacturing Company, President of the Stamford Associated Charities, a member of the State Board of Education and President of the Stamford National Bank. In connection with his banking business he was placed at the head of the bankers' committee that had charge of the two Liberty Loans which were such a tremendous success in Stamford.

We are glad to add that he has also been a Member of The Agassiz Association for many years. Senator George P. McLean also has been a Member for a long time, and we are

sure that it is a commendable satisfaction to us all that another prominent Member from this part of the country is in the governmental affairs at Washington.

### Change of Color in Glass.

BY C. D. ROMIG, AUDENRIED, PENNSYLVANIA.

It is not generally known that ordinary, plain, transparent glass changes in color, yet such is the fact. change is due to chemical action induced in the glass when it is exposed to sunshine, rain, etc., or to the full force of the weather. The location seems to have much to do with it. 1 think that the higher the elevation the more likely is the color to be formed in the glass. Our elevation is about seventeen hundred feet above sea level, and here the coloring is common.

Some twenty years ago or more I broke a heavy glass inkwell. I threw the parts out on the east side of my office, where for more than a year I noticed one of the pieces aimost daily as it lay exposed. One day I picked it up, and I decided that it had acquired a purple tint or a pale amethyst color. which proved to be true, for I was fortunate enough to find another piece that fitted to it, and this part retained the original tint. This discovery pleased me, yet the best informed men whom I could find did not believe that the sun or the weather had effected the change.

Two years later a friend showed me an article on this subject in a scientific paper, which conclusively proved my contention, although the article referred to glass found on the plains in the West. I have been interested in the subject ever since, and have found hundreds of glass pieces ranging from pale to deep amethyst color. This region is full of broken glass, much of it from beer bottles and glass thrown into the woods, which are here mostly low brush and huckleberry bushes. Owing to berry picking, broken glass can be found many miles from town, and it is invariably changed in color. My two best specimens are a broken beer glass and a beer bottle.

I have experimented, and found that in about six months a noticeable change takes place. I believe it would be a

fine business to put this color into cheap glass dishes, or still better into cut glass, but I do not believe that the cut glass will take the color from exposure. Some of these specimens are nearly equivalent to a gent, so rich and deep is the tint. Some that I have had or seen would make cut glass dishes almost priceless. Ten cent dishes thus tinted would advance to cut glass prices. I want to make some experiments along these lines which may result in the solution of this problem.

### Japanese Help Our Little Japan.

Great pleasure and encouragement have come to Arc \Di \Di by the voluntary contributions of several prominent Japanese gentlemen that were transmitted to us through the "Nippon-Jin Sha," New York City. These were a complete and delightful surprise. The Japanese friends who have thus not only aided us financially but have given us practical approval and encouragement are as follows:

Mr. T. Kozai, New York City . . . . \$2.00 Mr. K. Obata, New York City . . . . 1.00 Mr. S. Kawashima, Brooklyn, New

Vork ...... 1.00

Mr Tamizo Watanabe, New York

City ..... 2.00

Work has been suspended on Little Japan because it has become necessary to shingle the roofs of the office and laboratory. The work is now in progress. Work has also been discontinued for financial reasons. We have been obliged to draw from the general fund to pay for what has already been done. We have received \$838 and have paid out \$1,064.12.

### Do Your "Two Bits."

These are strenuous times in which every loval American is expected to do a bit in behalf of his country.

But in behalf of sustaining the nature cause in which we are working we ask you to do your "two bits" as they say in California, meaning twenty-five cents. It would be a long and somewhat pitiful story if we should tell of the intense struggle that we have been

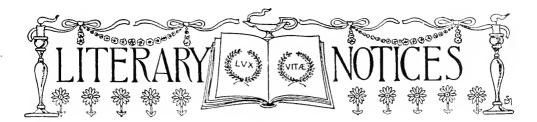
making for more than a year to keep the price of this magazine at one dollar for a year's subscription. Only because of their time given without charge by several workers here at ArcAdiA, and the gift of free time from several friends, associations, etc., it has been possible to avoid an increase in the rate of subscription. Every one knows that the cost of publication is vastly increased. Paper and cuts are at a price heretofore undreamed of. We have not increased the price because it is our sincere desire to accomplish the purpose of The Agassiz Association, which is to aid in the general diffusion of know-By keeping the price of subscription at one dollar, we reach many readers that could not possibly, especially in these times, afford to pay more. Even with the free time at this office and elsewhere, a dollar a year does not meet expenses. The deficit is made up by membership fees and contributions. In fact it is one of the primary ideas of this Association that its work shall be carried on by its Members and that one form of this work shall be this magazine.

But there is another way in which friends could aid us, not only in the financial part of our work, but in our labor of diffusing knowledge. That is by helping us to interest more people. To do that, send us "two bits" twenty-five cents and we will make a Christmas present of a four months' subscription to any person whose address may be sent with the "two bits." Naturally it will be seen that these "two bits" will not cover expenses, but they will take us into new fields, help to secure new Members and largely increase our circulation, and thereby help our advertisers. The "quarter" is not much to you but you will be giving more than a "quarter" in value to a friend. But if each of the several thousand people that we reach every month would send twenty-five cents the aggregate would be many times "two bits."

The Pepper Tree of California. Gracefully bending and telling its beads,

The Pepper is everywhere; In exquisite beauty a thing apart, And bowed like a nun in prayer.

-Emma Peirce.



AROUND THE YEAR IN THE GARDEN. By Frederick Frye Rockwell. New York City:

The Macmillan Company.

From the aesthetic and educational standpoint this is a delightful book. Some of the illustrations are especially inspiring. The author makes suggestions for work during each week in the year, and has well arranged his material. The book is really necessary for the amateur gardener. The illustrations alone are well worth having, and the text is pleasing and helpful.

HUNTING DINOSAURS IN THE BAD LANDS OF THE RED DEER RIVER, ALBERTA, CANADA, By Charles H. Sternberg, Lawrence, Karsas: Charles H. Sternberg.

This book is a book of personality. Mr. Sternberg has been a collector for many years, and the results of his work are found in nearly every museum in the country. If any one, standing in the department of fossils of any museum, should ask if these dry bones can be made to live, he would have the question answered in the positive by

reading Mr. Særnberg's book. He has as much personality and even as many little idiosyncrasies as Boswell put into his "Life of Samuel Johnson." For a half century Mr. Sternberg has collected fossils. What he tells of his experiences and of the impressions received by living in the realm of these extinct and wonderfully strange animals merits the attention of every naturalist. The price of the book is two dollars pos paid. As cordiany advise even the occasional visitor to a museum to obtain the book and to learn of the life of the fossil hunter and of his relations to his work.

OUR BACKBOOR NEIGHBORS. By Frank C. Pellett. New York City and Cincinnati, Ohio: The Abingdon Press.

The author is evidently a naturalist with special enthusiasm for the study of honeybees. Some of us had begun to think that he is concentrating his attention on honeybees, but his recent contributions to this magazine and promises of more, and especially the timely appearance of this book,



THE NATURALIST (MR. PELLETT) DECIDED TO TAKE THE NEST TO HIS STUDY. From "Our Backdoor Neighbors."

all tend to show that his heart is right, although he may not get time to extend his interest over a large territory. In his interesting book, Mr. Pellett publishes good articles and attractive illustrations on redtailed hawks, screech owls, polecats, tur-

and music of it, of shore and dune and pine and mystifying lights upon the sunset waters and the windings of the river to meet the waiting amplitude of horizonless waves. God's perpetuated mercy is that beauty is customary; but in some places beauties do



"AS SOON AS AN EGG CRACKED OPEN, A LITTLE NOSE WOULD BE PUSHED OUT, AND THERE BABY TURTLE WOULD SIT FOR HOURS."

From "Our Backdoor Neighbors."

tles, cotton-tails, crows, caterpillars and many other things to prove that he keeps his eyes open when he goes afield, and to emphasize the old saying, "Everything is fish that comes to the net of a naturalist." We hope the book will have an extensive sale. It has the right spirit.

Beside Lake Beautiful. By William A. Quayle. New York City: The Abingdon Press.

The naturalist and the minister combined in one person have produced this book. The author's most famous previous work is perhaps "In God's Out-of-doors." In the present book he has revealed his heart from a cottage "somewhere on a lake," but just what lake it is he does not tell us. All we are to know about it is:

"On the east shore of one of America's inland seas (which one is not material) I have spent sundry summers, and if I set atalking and grow garrulous, set it down not to age, but to love; for love and age are alike garrulous. Good things bear talking of, and that right often."

The religious element is conspicuous. He tells us:

"I speak now of the lake with tilt of wave

as stars do in certain spaces of the skies—they cluster. Beside Lake Beautiful is such a spot.

"My pages of memory are sown to pictures which I humbly hope and pray my God will let me have when I have come to stay with Him in heaven: and I think He will."

The publishers have done their part well. The book in itself is admirable. Not only a good thing to hold in the hand but it looks well on the table. It makes us see what the author sought at his lakeside and shows us much more of his inner self and what he was thinking as he wanders around the lake or rows on the water. He has read the hymn and is ready for the people to sing.

"We come and look at the river or the lake, and the winds are fresh and glad and the landscape seems like a picture God had just painted, and we say grace and partake, and laugh when there is no joke and giggle when we are most solemn. Out in God's dining-room with those we love the very most in this world is pure delight. This is the land of pure delight whereof we wistfully sang in winter days, and we are its inhabitants. Lift the song."

# THE GUIDE TO NATURE

No. 8. VOL X 1917 1918

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Those who have no safe place for their

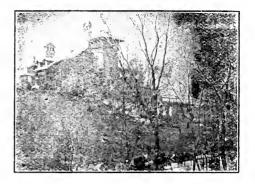
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### Welcome News to Dog Owners.

A personal letter from Spratt's Patent (American) Limited states as follows:

"You may care to note that we shall probably be permitted to continue the manufacture of dog cakes, etc. This will be welcome news to dog owners, for Spratt's Dog Cakes, Puppy Biscuits, etc., are now looked upon more as economical necessities than canine luxuries.

"In Great Britain it appeared likely at one time that the manufacture would be prohibited, but it was soon shown that the use of these foods really relieved the strain upon foods of various kinds for human consumption. The Food Controller therefore gave the necessary permission for the continuance of the manufacture of Spratt's Dog Cakes. The same view has been taken here, at least for the present, and it is hoped that it will remain effective."

### It Is Now Wilt's Restaurant.

The tide of favor and the line of excellence change from time to time. It is Wilt's now because he has established and is conducting a highly popular restaurant. The place is popular because it is clean, the prices moderate and the service cordial.

This item is written not because Mr. Wilt has become an advertiser in this magazine, but he is an advertiser and was invited to become so on account of the good qualities that prevail in his restaurant.

### Three Sets of Twins.

The father named the first pair Pete and Repeat. He liked that sort of idea, so the second was named Kate and Duplicate. But when the third set arrived he felt that even a good thing might be carried a little too far and he called one of these Max and the other Climax

### Subtraction of Natural Objects.

The teacher was hearing the youthful class in mathematics.

"No," she said, "in order to subtract, things have to be in the same denomination. For instance, we couldn't take three pears from four peaches, nor eight horses from ten cats. Do you understand?"

There was assent from the majority of pupils. One little boy in the rear raised a timid hand.

"Well, Bobby, what is it?" asked teacher.

"Please, teacher," said Bobby, "couldn't you take three quarts of milk from two cows?"—New York Evening Post.

### Iconoclast.

A puppy
Ambling sidewise
Intent upon the memory of some buried bone.

Halts before my pool— A hollow place within the walk Filled by this morning's rain. Thirst satisfied, He waddles off, Doubtless never knowing His rotund stomach holds

My mirror of infinity.
—Murdock Pemberton in "The Evening Post."

"That towers tall and mighty

"That towers, tall and mighty, Far, far above my head."

The tempest raged with fury,
The pine tree is no more;
But the lowly little floweret
Still blossoms as of yore,
—Emma Peirce.

China has long furnished the stock example of a country ruined by cutting off the forests. A newly organized Department of Forestry will attempt to remedy the evil.

# Friendship

No word is oftener on the lips of men than Friendship, and indeed no thought is more familiar to their aspirations. All men are dreaming of it, and its drama, which is always a tragedy, is enacted daily. It is the secret of the universe. You may thread the town, you may wander the country, and none shall ever speak of it, yet thought is everywhere busy about it, and the idea of what is possible in this respect affects our behavior toward all new men and women, and a great many old ones.

\* \* \* \* \*

Think of the importance of Friendship in the education of men.

"He that hath love and judgment too, Sees more than any other doe."

It will make a man honest; it will make him a hero; it will make him a saint. It is the state of the just dealing with the just, the magnanimous with the magnanimous, the sincere with the sincere, man with man

\* \* \* \* \*

Between whom there is hearty truth, there is love; and in proportion to our truthfulness and confidence in one another, our lives are divine and miraculous, and answer to our ideal. There are passages of affection in our intercourse with mortal men and women, such as no prophecy had taught us to expect, which transcend our earthly life, and anticipate Heaven for us.

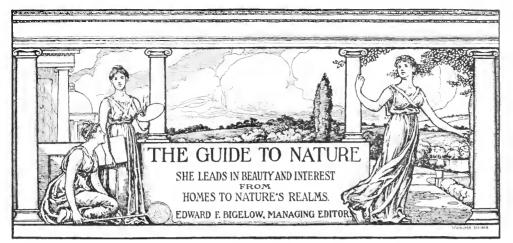
\* \* \* \* \*

As I love nature, as I love singing birds, and gleaming stubble, and flowing rivers, and morning and evening, and summer and winter, I love thee, my Friend.

\* \* \* \* \*

Even the death of Friends will inspire us as much as their lives. They will leave consolation to the mourners, as the rich leave money to defray the expenses of their funerals, and their memories will be incrusted over with sublime and pleasing thoughts, as monuments of other men are overgrown with moss; for our Friends have no place in the graveyard.—Henry David Thoreau.





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Volume X

JANUARY, 1917

Number 8

### FRIEND ROBERT JAY WALSH.

A Great Friend of Greenwich, Friend of The Agassiz Association. Preeminently a Friend of Everybody. Died at His Home in Greenwich,

Connecticut, December 7th, Aged Sixty-three Years.

In the death of Judge Robert Jay Walsh, Greenwich has lost its greatest man. He was great in statesmanship, citizenship, finance, politics, education and personal character. But he was greater than all these as a friend.

Though not enrolled as a Member of The Agassiz Association, he was in some respects the best friend our organization has ever had. His advice and his good deeds in behalf of our work were many, but it was his request that they be not published. This request will explain, especially to our friends and Members in distant places, why his name has not previously been mentioned in this magazine.

His life is an inspiration to every faithful student. He was not only self-made but well made. The story of his early endeavors, of his life-long achievements, of his great power always for good in the community, reads like a fairy tale. Probably no other community can point to a man of such unique power and high esteem in his own locality.

A brief biographical sketch, an account of the funeral and a few of the many testimonials to his greatness and goodness, we quote from local publications as follows:

Hon. Robert Jay Walsh, the most prominent and respected citizen of Greenwich died Friday afternoon at 4 o'clock at his residence on Dearfield Drive, after an illness which had confined him to his home for two weeks. Funeral services were held at his late residence on Monday afternoon at 3:15 o'clock. The services were marked by simplicity, typical of the man and were conducted by the Rev. Dr. Joseph H. Selden of Norwich, Conn., formerly pastor of the Second Congregational Church and the Rev. Dr. Oliver P. Huckel, the present pastor, and Rev. M. George Thompson, rector of Christ church. Hon. Homer S. Cummings paid feeling tribute to Judge Walsh's sterling character and to his invaluable service to the community. The honorary pallbearers were:

John Maher, John W. Diehl, John D. Barrett, Nathaniel A. Knapp, James Maher, S. Elbert Mills, Wilbur S. Wright, Fred A. Hubbard, James R. Mead, Homer S. Cummings, E. L. Scofield, John E. Keeler, Luke Vincent Lockwood, Noah C. Rogers, Julian W. Curtiss, George L. Slawson, Charles A. Moore, Jr., Augustus I. Mead, Herbert

McCord, Henry H. Adams.

The interment was made in the Walsh family mausoleum at Putnam Ceme-

terv.

Men of marked ability, forcible character and culture leave their impress upon the world written in such indelible characters that time is powerless to obliterate their memory, or sweep it from the minds of men. Their commendable acts live long after they have passed from the scene of their

earthly career.

In Judge Walsh we find the friend and counsellor of all Greenwich, one of the most distinguished members of the Fairfield County Bar, twice State Senator representing the Twelfth District, member of the Commission of 1888 to revise the Statutes, Secretary of State of Connecticut in 1889 for two terms, Judge of the Criminal Branch of the Court of Common Pleas holding the office until he resigned about seventeen years ago to give his entire attention to his law practice and business interests in Greenwich.

Judge Walsh was born August 1, 1854, at Lewisboro, N. Y., the son of James F. and Annie E. Walsh, one of

six children, Mrs. Thomas E. White, Miss Mary M. Walsh, of Ridgefield, Mrs. John Morgan who died last spring, Hon. James F. Walsh of Greenwich, and Mrs. Dennis Buckley of Cannondale, Conn.

In 1864 Judge Walsh's family moved across the boundary line into Connecticut, settling in the town of Ridgefield, and he having already advanced in elementary studies continued them in the local public school. At the age of twelve years he left the common school and became a student in the High Ridge Institute at Ridgefield, where he had the advantage of instruction under the accomplished Professor William O. Seymour. After devoting two years to acquiring a knowledge of the higher branches he felt that the time had now come to enter the arena of practical life; a sturdy lad descended from sturdy ancestry he chose the ancient and honorable trade of a blacksmith. During the years of apprenticeship he made use of his spare hours for the improvement of his mind by study and useful reading, which proved a large asset in his future sphere of usefulness. Seeking the advice and assistance of Dr. William S. Todd, then a practitioner of medicine in Ridgefield, with him he reviewed his studies preparatory to teaching. Through the assistance of Dr. Todd at the age of seventeen he received the appointment of teacher in one of the local schools; he taught one year and then in order to perfect himself in his profession entered the State Normal School at New Britain, but did not complete the full course, because of an advantageous position offered him in Port Chester, N. Y., as teacher in one of their schools. His first school was a success and where he taught he left but one record, a record crystalized in the words "The best teacher we ever had."

Characteristically, while yet teaching he began the study of law under the advice and instruction of Col. H. W. R. Hoyt, a prominent lawyer in Greenwich; in due time Mr. Walsh was admitted to the bar, and was received into partnership by his accomplished and experienced preceptor. He was immediately thrown into the field of political effort and won his reputation as a lawyer under the most benign auspices. In 1882 he opened a law of-

fice for himself in what was then the town building. During the year of his admission to the Bar he was chosen counsel for the town of Greenwich, an office which he proudly retained up to his death; thirty-five years of continuous service.

An ardent Republican, during presidential campaign of 1880, he took the hustings in Connecticut for Garfield and Arthur and the same year he was elected to the Republican State Central Committee, a party honor which was afforded him by re-election down to the time he was appointed Judge, when he resigned. In the year 1884 he ran as state senator from the Twelfth District and was elected by a large majority, running far ahead of his ticket. In 1886 he was chosen secretary of the State Central Committee and being renominated for the Senate was re-elected by twice the majority received in the previous campaign. He was elected to several important chairmanships of Committees and was Republican Senate leader.

In 1885 having already achieved a wide reputation he was appointed by Governor Harrison a member of the commission to revise the statutes of Connecticut, and although the youngest man in this body he was one of the most active in its deliberations. Probably no lawyer has occupied a more distinguished position at the Bar. In 1900 he gave up all political activities, resigned as Judge of the Court of Common Pleas, and resumed the active practice of law and his attention to his several real estate enterprises.

Early, Judge Walsh saw the advantage of developing Greenwich real estate and was one of the pioneers in buying property on a large scale; his first venture was the purchase of the then Zopher Mead farm which proved very profitable; subsequently with the late Nathaniel Witherell he acquired the farm belonging to the estate of Col. Thomas A. Mead, and together with Mr. Witherell built the Edgewood Inn. About 1901 he purchased with others Field Point, probably the most valuable suburban residential section of its size in New England.

Mr. Walsh was intensely interested in everything that was for the benefit and upbuilding of the community. He was one of the pioneers in the in-

troduction of electricity in town, and of the trolley company. At the time of his death he was president of the Greenwich Trust Company, which he helped to organize thirty years ago; the Greenwich Water Company, The Putnam Cemetery Association, the Abendroth Bros. Foundry of Port Chester, N. Y., and the Port Chester Water Works, and director of the New York & Stamford St. R. R. He was trustee of the Y. M. C. A., the Greenwich Library Association, a charter member of the Fairfield County Golf Club, now the Greenwich Country Club, and also a member of the Blind Brook Club, Indian Harbor Yacht Club, the Republican Club of New York, a member of Acacia Lodge, F. & A. M., and Empire Lodge, I. O. O. F., both of Greenwich.

Judge Walsh married Miss Annie A. Merritt, daughter of Mr. and Mrs. Matthew Merritt, on October 7, 1879, to this union three children were born, Lucy M., now the wife of Walter B. Todd: Edith B., who died several years ago, the wife of A. W. W. Marshall, and Roberta Jay, the wife of Lloyd S. Cooney.

Judge Walsh's career is a shining example of what may be accomplished by inherent natural ability, coupled with a strong determination and perseverance even under the most adverse circumstances. He acquired a moderate competence, an influential position and an honorable name. That there are no rules for building character, no rules for achieving success, no royal road to fame, is proved by the career of Honorable Robert Jav Walsh, who was the architect of his own fortune, who loved his friends and his enemies and it is thought that even his enemies loved him.

He was, in the most unqualified sense, a self-made man. Apprenticed in early boyhod to learn the trade of blacksmith, his passion for books and study, which he indulged in his leisure hours and at every opportunity, awakened ambition for great things, and he soon abandoned the forge and anvil for a career that was destined to be distinguished, brilliant and eminently sucessful.

His chief inheritance was sturdy selfreliance, indomitable will, magnetism of personality that enabled him to win friends and retain friendships; a keen, analytical mind that could read men and discern between the real and the sham, and a broad philosophy of life and its relations, man to man.

He was Greenwich's best-known citizen and a man whom his fellows delighted to honor. His acquaintance extended far and wide, and in his own state he was known in every town and had friends everywhere, by reason of his former active prominence in public life. A natural bent for the fascinating pastime of politics, which brought him into prominence even in the early days of his career, soon developed his capacity for leadership, and his party recognized his services, his ability and his patriotism by repeatedly honoring him with public office, which he invariably filled with distinction and credit to himself and town, county and state.

\* \* \* \* \*

His tremendous capacity for business detail is evidenced in the numerous successful enterprises in which he was actively engaged, especially during the later years of his life. The Greenwich Trust Company, of which he was virtually the founder, and its president for 27 years, was his special pride: and the magnificient new Trust building, which is the admiration of all beholders, will stand as an enduring monument to his memory.

But it is as Judge Walsh, the man that he will be most sadly missed by unnumbered acquaintances. He was a genial, generous, helpful neighbor and friend, of broad charitable impulses and and kindly counsel. He was unostentatious in his charities and his helpfulness; but many a man and woman in Greenwich today mourns his departure, with emotions of gratitude born of the remembrance of his kindness and help at times when kindness and help were sorely needed. His memory will long endure.—Greenwich News and Graphic.

# \* \* \* \* \* JUDGE WALSH'S OBSEQUIES.

## Mr. Cummings, in a Touching Eulogy, Summarizes His Character.

Relatives and many friends, including a large representation of the Fairfield County Bar, attended the funeral service for Judge Robert Jay Walsh

yesterday afternoon, at his late home in Greenwich. The clergy assisting were Rev. Joseph H. Selden, D. D., of Norwich, formerly of Greenwich; Rev. Dr. Huckel and Rev. M. George Thompson of Greenwich. The eulogy was pronounced by State's Attorney Homer S. Cummings, who in a few words summed up the character and career of Judge Walsh. Mr. Cummings said:

"I have been asked to say a few words. I cannot resist such a summons. Judge Walsh was my friend, and I loved and respected him. In all the years of that friendship, I have never known him to do an unjust deed, or harbor a mean or unworthy thought.

"His spirit was singularly sweet and genuine. He had a genius for the right thing—the kind thing. In the best sense he was typically American. Beginning at the very bottom of the ladder of life, he climbed to the top. And in the progress no one was harmed. It was not a ruthless ambition that stirred him; it was the natural expression of his talents, feeling their way to better things and helping, the while, all who came in contact with him.

"It is sad to see our friends fail in health and to know that the eternal summons will not be long delayed. And yet such is the way of life:

"'Whether at Nashipur or Babylon, Whether the cup with sweet or bitter run, The wine of life keeps oozing, drop by drop, The leaves of life keep falling, one by one.'

"But to the noble of spirit, Death presents no aspect of terror.

"'The whole earth,' said the great orator of antiquity, 'is the sepulchre of famous men.'

"Our American poet was a prophet, too, as all true poets ever are, when he said:

"'There is no death; what seems so is transition.'

"For relatives and friends, this is a privileged hour. Sorrow is mingled with a kind of solemn pride that so good, so wise and so just a man was a part of our daily life. That thought brings an abiding peace like

"'The lone star and the shadowed hush That come at evening when the thrush Revels the day, so worn and long, Into the silver of a song."

—Stamford Advocate.

### A Tribute to Judge Walsh.

BY CHARLES ARTHUR MOORE, JR., GREEN-WICH, CONNECTICUT.

Judge Walsh was so much bigger and finer than anything which he accomplished in his active and successful life that those who knew him well must realize very keenly that his character and the influence he exerted upon everyone with whom he came in contact are the outstanding and paramount achievements of his career.

What WE DO is largely a question of opportunity; what WE ARE depends upon ourselves. The qualities of the soul given to us at birth are developed as life goes on, well or ill, as nature impels us. Judge Walsh was fortunate beyond most men in material ways. Yet he did not amass a huge fortune nor arrive at national reputation. But when he stood out head and shoulders above most of the so-called great, and infinitely above those whose only claim to notice is wealth, is in what he himself was.

The biggest accomplishment, the greatest success of Judge Walsh's life, was the man himself. He justified his life in every phase and turn of his character.

He was a true leader of men because he had by birth the heart of a leader. honorable, brave and above all, kind and generous. And those characteristics that were his by birth he made the most of through cleanly and bravely living a long life.

What Judge Walsh did in Greenwich he could as easily have done in Wall Street or Washington and on a scale magnified a hundred-fold. The same qualities that made him the recognized great man of this town could have as easily made him the great man anywhere else in any company.

But he chose this town for the scene of his life and, loving the place, he exercised his talents here amongst us. With none of the glamor that is thrown about far-off names by distance and imperfect knowledge, years ago Judge Walsh became recognized here among those with whom he met almost daily on intimate terms, as a great man. And, a far more difficult test of real greatness, he remained our unchallenged, unquestioned first citizen through many years after having won that place in

our opinion. And as our great man he died.

There is a particularly characteristic touch in the fact that he was prouder of having been the counsel for the town of Greenwich for a period of thirty-five years of changing political administrations of the town government than of any of the more showy and solid honors that came to him from the larger outside world; a fact that he frequently mentioned. A clean, big and straightforward citizen of Greenwich has left the town and the people, his friends that he loved.

### The Power of Kindness.

Once in a while, in recent years, some of the "reformers" who occasionally try to make a stir in Greenwich have referred to the Walshes as local political bosses. Not one of them seemed to understand the reason for the great personal popularity of R. Jay Walsh. and why the candidates he preferred were most likely to be nominated and elected. The truth is that hundreds, perhaps thousands, of people in Greenwich were indebted to him for acts of kindness. He was continually helping people in one way or another—people who were in a position to give him nothing in return but gratitude, and some of whom did not give even that. Rich men recognized his remarkable ability; poor men were able to approach him with confidence of getting from him sympathy in trouble, advice in perplexity, and substantial help in time of need. R. Jay Walsh had the advantage of experiencing the trials and struggles of a poor boy. It was a good training. He might have worked for most of his life in a country smithy, but for his ambition to be what he became. And he had to make his own way in the world. He had no rich friends or relatives to assist him to an education, none to help him to advance. He had to rely upon his own efforts. He was such an apt student in a country school that he qualified, as a youth, for a position as teacher in Greenwich, and some of his former pupils say that he was the best teacher they ever knew. Greenwich should remember R. Jay Walsh as an example of what can be achieved by an ambitious boy.—The Stamford Advocate.

### The Heavens in January.

By Professor Eric Doolittle of the University of Pennsylvania.

In the opening days of the year 1918 we find every one of the bright, naked eye planets either high in the evening heavens or just beyond the borders of our evening map. A few months ago the reader who wished to study these interesting worlds was obliged to look

observation during the evening, while throughout the entire year we will have with us the very interesting planet Mars, whose rapid eastward motion and conspicuous changes in brightness, as it first draws near our earth and afterward recedes again, will afford an



Figure 1. The Constellations at 9 P. M., January 1. (If facing south, hold the map upright. If facing east, hold East below. If facing west, hold West below. If facing north, hold the map inverted.)

for them in the east, during the morning hours shortly before sunrise, but it is now in this part of the sky that the planets are entirely wanting.

For many months to come the wonderful worlds, Jupiter and Saturn, will remain in the best possible position for object of continued interest for study. This world did not come into the most favorable position for observation at any time during 1917, but on March 18 of the present year it will attain its least distance from us and will appear largest and present more detail in the

telescope than at any other time.

### The Planets in 1918.

Mercury, on January 1, is still an evening star, but it is far too near the sun to be observed. Only two days later it will in fact enter the morning sky, not to again pass to the east of the sun until March 12. On April 7 it will attain its greatest distance east of the sun and in its interesting and rapid oscillations from one side of the sun to the other will similarly reach

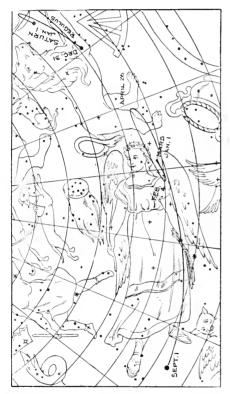


Figure 2. The paths of Mars and Saturn on the Celestial Sphere.

its greatest eastern elongation on August 5 and on November 29. On the first two dates the planet will be above the celestial equator and will easily be found by the observer; the last elongation, however, will be a far less favorable one.

The beautiful Venus, which has been shining so very brightly in the southwest, will attain its greatest brilliance on January 5, when it will shine with no less than one hundred and forty-five times the brightness of a first magnitude star. It is now drawing continually nearer the sun and consequently is

seen lower in the sky on each successive evening. Yet special effort should be made to observe it for it is at this particular time that it is of greatest interest in the telescope. During January it will be seen to change from a planet nearly half full to the narrowest imaginable silvery crescent, and moreover Venus is now so near the earth that a very small telescope will show its change of phase very clearly.

Venus will pass to the east of the sun on February 9, reaching its greatest brilliance in the morning sky on March 16 and its greatest distance from the sun's rays on April 23. On November 23 it will again enter our evening heavens, but it will not become a conspicuous object in the west until early in

the following year. Mars may be called the reigning planet of the coming year, for it will shine brightly in the evening heavens from the very beginning of the year until its close. On January 1 the planet is found near the western border of the constellation Virgo and is hence a little beyond the limits of our evening map. At this time it is moving slowly eastward (as shown in Figure and this eastward motion will continue until February 4. From this latter date until April 26 the planet will move westward until it reaches a point in the constellation Leo. The rapid eastward motion will then be resumed and this will continue until the end of the year.

It is this eastward motion of Mars which will retain it in our evening skies throughout the year. The sun, pursuing its accustomed path, AVB, Figure I, will cross the equator at V on March 21, and in due course will overtake and pass to the east of both Jupiter and Saturn. By December 31 it will have but a little way passed the Winter Solstice in Sagittarius, while Mars will have moved still farther east into Capricornus. The planet will then be seen glowing redly in the southwest for about two and one-half hours after sunset.

Jupiter is now in its highest position in our evening heavens. It is seen shining brightly, almost on the meridian, nearly midway between the Hyades and the Pleiades. During the year it will move eastward almost to the center of the constellation Gemini, by De-

cember 31 reaching the position indicated in Figure 1. Jupiter will remain in our evening heavens, though continually sinking lower in the west, until June 15, when it will be passed by the sun and so become a morning star. During the last six weeks of the year it will again be found on our evening map.

Saturn will remain an evening star until August 11, then to enter the morning sky until within a few weeks of the end of the year. Its path among the stars is shown in Figures 1 and 2, of which the most interesting feature is the steady approach of the Ringed Planet to the bright star, Regulus. At the close of this year and during the beginning of the next the two bright objects will shine out as a beautiful pair of stars in the sky, though one is so im-

ing sky, rising only about two hours before sunrise.

Thus all of the bright planets will be visible at the beginning of the present year, and also at its end. During the months of August, September and October, however, all except Mars will have withdrawn from our evening map. But this most interesting world, whose rapid motion and changing appearance are always so well worthy of study, will remain with us throughout the entire year.

### Phenomena of the Year 1918.

Unquestionably the most important astronomical event of the year will be the total eclipse of the sun which will occur on the afternoon of June 8. On this date the shadow of the moon will

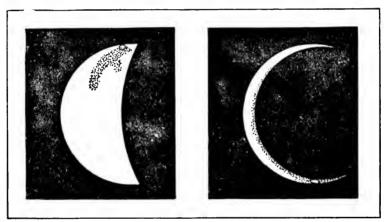


Figure 3. Two drawings of Venus. The first shows the phase (or shape) of this planet as it appears in an inverting telescope on January 1, and the second shows its phase on January 31.

measurably more distant and of so wholly different a nature from the other.

Uranus, which long ago began its slow upward climb from the Winter Solstice, is still far below the equator in the constellation Capricornus. In the course of thirty-five years it will have reached the constellation Gemini and will then be in far better position for observation than it is at present.

The even more slowly moving Neptune, which requires one hundred and sixty-five years to complete its circuit of the heavens, will during the present year traverse the small arc of its path from C to D, Figure 1. It will pass below the bright star at E on August 21, but at this time it will be in the morn-

sweep entirely across our country, from the state of Washington in the northwest to Florida in the southeast. Within the path of this shadow the light of the sun will be completely blotted out; from elsewhere in the United States a part only of the sun's disc will be covered. The will strike the extreme northwestern horder of our country at about 5 hrs. 5 min. P. M. (Eastern Standard Time) and will arrive at the peninsula of Florida only fifty minutes later. At Philadelphia the eclipse will be a partial one, only seven-tenths of the diameter being covered. Every reader who can do so is urged to make the journey to some point within the shadow path on this day, for a total eclipse of the sun is the most impressive heavenly phenomenon that can ever be witnessed by us.

Two other eclipses will also occur during the present year. The first is a very small partial eclipse of the moon, only one-eighth of the moon's diameter being immersed in the earth's shadow. This eclipse will take place shortly before sunrise on the morning of June 24. The third eclipse, on December 31, is a so-called annular eclipse of the sun, totally invisible to us, and visible only from stations in South America and in western and southern Africa.

The motion of our moon among the stars in the course of its monthly circuit of the heavens is a less striking phenomenon but yet a most interesting subject for study. A very little observation will show that our moves eastward a distance approximately equal to its own diameter in the course of one hour, and that changes its position in the heavens about thirteen degrees each day. The careful observer will also discover that it does not follow exactly the same path on successive months. while the moon passes below the Pleiades on January 21, February 17, March 16, etc., during the present year, he will notice that on each successive passage its path among the stars lies lower, the displacement amounting to no less than three times the apparent diameter of the moon in the course of the year.

On various evenings the moon will be seen to pass over, or "occult," many different stars, but there will be occasions when a planet will be seen to be thus hidden during the present year; only two planetary occulations will take place. On August 3 the moon will occult Jupiter and on October 9 it will pass over Mars, but neither of these interesting phenomena can be viewed from stations within the United

States.

### An Unsolved Problem.

The American Association of Variable Star Observers (it is the stars that are variable, not the observers) met on November tenth, at the Harvard Observatory, and adopted a formal organization in place of the loose tie that had held them heretofore.

The members, of whom there are now about eighty, are largely amateurs. A few of them own or have access to fair sized telescopes, five inches and above. Others have only two- and three-inch glasses, while not a few depend on their unaided eyes or use nothing more powerful than field and bird glasses.

The object of the Society is to set the largest possible number of amateur observers to watching individual variables and recording carefully the brightness of each. The records are then turned in to the secretary of the Association and to Harvard Observatory, where they are brought together and plotted. Immediately afterwards, they are published in "Popular Astronomy." The result is a vastly greater body of fact than any observatory staff would be able to discover.

Variable stars are the one great mystery of the heavens still unsolved. Save for the "Algol type" in which a dark companion revolves around the bright star and periodically shuts off a part of its light, there is no satisfactory explanation of variable stars. Omicron Ceti or Mira, several times mentioned in the astronomical columns of this journal, is still as wonderful and almost as much an egima as when, in 1506, it ws first discovered to be variable.

But the only way to solve any puzzle which nature sets us is by getting facts. And facts concerning variable stars seem to be about the only sort of facts concerning the heavenly bodies which the amateur of astronomy has it in his power to contribute to the advance of scientific knowledge.

The secretary of the society is Mr. Tyler Olcott, 64 Church William Street, Norwich, Connecticut.

### Not Elephantine!

They were discussing that joke about getting down off an elephant.

"How do you get down?" asked the

jokesmith for the fourth time.

"You climb down."

"Wrong!"

"You grease his sides and slide down."

"Wrong!!"

"You take a ladder and get down."

"Wrong!!!"

"Well, you take the trunk line down." "No, not quite. You don't get down off an elephant; you get it off a goose."-Indianapolis News.



All communications for this department should be sent to the Department Editor, Mr. Harry G. Higbee, 13 Austin Street, Hyde Park, Massashusetts. Items, articles and photographs in this department not otherwise credited are by the Department Editor.

### Some Late Nesting Dates.

During the past season there have come under the writer's observation several instances of late bird nesting which have seemed rather unusual for their particular localities.



NEST AND EGGS OF SONG SPARROW AT TYNGSBORO, MASSACHUSETTS.

At Hyde Park, Massachusetts, on the twenty-ninth of June, the nest of a red-eyed vireo was found about ten feet up in an apple tree. This was an unusually deep and well made nest, and contained four eggs, apparently fresh. The mother bird remained upon her eggs while the tree was being sprayed, and did not leave until, in a later examination with the aid of a stepladder, I drew the nest within a foot of my head and looked down upon her.

In the same yard with the above, and on the same date, a song sparrow's nest containing four fresh eggs was noted, this being quite unusual in both its location and the lateness of the nesting period. The nest was four to five feet from the ground in a small spruce tree. It was composed of dried grasses and a few leaves, was deeply hollowed and lined with horsehair. With its four brown-spotted, bluishwhite eggs, and in its dark green setting of the feathery spruce, this nest presented a beautiful picture, and one quite different in its surroundings from the usual song sparrow nest, which we ordinarily find placed upon the ground in a swamp, either in a tuft of long grass or some similar place where it is well concealed. On the following day this nest was found to contain five eggs, which showed the complement to be completed on that date, the thirtieth of June. It was not visited again.

At Nashua, New Hampshire, along the Nashua River, a kingbird's nest was found containing young on the first day of August. An examination of this nest on the eighth instant showed it to be empty, the birds probably having developed and flown. A Wilson's thrush nest and three eggs were also found here on the latter date.

At Tyngsboro, Massachusetts, on the same date, the song sparrow's nest here illustrated was found concealed in the grass along the high bank of the Merrinack River, within a few yards of the bordering boulevard. There were three eggs in this nest, which was nearly stepped upon before the bird was flushed, and by the actions of the mother bird ,which hovered excitedly about while we photographed the nest, we presumed the eggs to be partly incubated. The structure was typical, being composed entirely of grass, and the small number of eggs in the comple-

ment might indicate that it was a second set from this pair of birds.

Another late nesting date was on the sixteenth of August, when several barn swallows' nests containing young were noted at Newport, Rhode Island, these being elsewhere referred to in another article. Along the Newport cliffs young terns were also observed on this date, which would indicate a much later nesting period than is usual for this species.

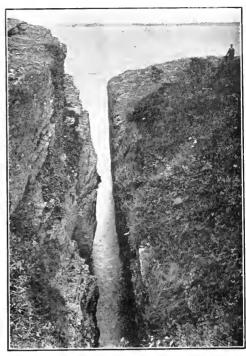
### Barn Swallows Nesting on the Cliffs.

It is well known that many birds have of necessity gradually changed their nesting habits with the advance of civilization, owing to the encroachment upon their native haunts which always accompanies this advance. Those which have not been able to adapt themselves to these new conditions have always suffered the consequences and faced serious depletion in their numbers, if not extermination. Many species seem to be undergoing these changes at the present time, and thus, according to their environment, show considerable variation in their individual nesting habits.

Phoebes and robins we find readily accepting these changed conditions and adapting themselves comfortably to the various nesting sites offered about our buildings, although these may still be found breeding in equal numbers in the woods. The cliff swallow—an original cliff dweller—is now known much more commonly as the "eave swallow" owing to its habit of plastering in rows beneath the eaves of old barns its tubular clay nests; nighthawks breed with equal composure on the flat, gravel roofs of our city buildings or on a bare rock on the ground in the woods; and we find bluebirds, flickers and wrens at once accepting our proffered nesting boxes when we set them up in suitable locations about our dwellings.

The species mentioned are birds which seem to be undergoing these changes and apparently keeping pace with the times, while others have so long changed their habits that we know little of their former customs, and instances where we find them nesting in the old way appear to us strange and unusual. Chimney swifts, birds which once dwelt in hollow trees in the woods, are now common birds of town and

city, and seem to find in our brick chimneys a satisfactory substitute for their ancient wilderness abode; purple martins apparently breed nowhere except in the tenement houses which we erect for them, while barn swallows have be-



PURGATORY—A CHASM IN THE NEWPORT CLIFFS.

come so closely associated with our farm life that they would now seem out of place if we found them anywhere else, and there seems to have been little written concerning the nesting habits of these birds before they occupied the rafters of our barns, where with their cheerful twitterings, bright colors and vivacious ways, they dart in and out of the open doors or windows.

There is, however, at least one place in New England where barn swallows are now nesting out of doors. Along the cliffs at Middletown, Rhode Island, just over the Newport line, is a great chasm known as Purgatory; our first picture gives a good idea of its appearance from the land side. This cleft varies in width from five to six feet at its narrow end near the shore to perhaps fifteen feet at the widest part. It is cut seventy feet deep through the solid ledge, and at extremely low water one might walk around the base of the



BARN AND CLIFF SWALLOWS NEST ON THE LEDGES OF THIS CHASM.

cliffs and into its cavernous opening, though an ordinary tide reaches its farthermost end and dashes well up on to the walls.

On the rough projections of these rocky walls, from fifteen to thirty feet below the upper surface, a number of barn swallows have made their home for many years. I had personally known of their nesting here some twenty years ago, and this past season had the pleasure of again observing this little colony.

Here on the sixteenth of August, 1917, my companion and I observed several pairs of barn swallows flying in and out of the chasm. We were somewhat surprised to note that these birds were carrying food, as we did not suppose there would be voung in the nests at this late season. By closely watching, however, we soon discovered a nest a few yards below the upper edge of the chasm near its farthest end, which is shown in our second picture. There were three or four young birds, apparently less than a week old, in this nest, and we watched them for some time, noting that the parent birds appeared at intervals of about a minute, clinging to the edge of the nest while they fed their babies. There were a number of other nests far down in this great rocky cleft, where they were considerably sheltered by the overhanging walls, and we could see the adult birds darting in and out though we could not discern their nests.

There were also a number of cliff swallows flying in and out of the chasm, apparently feeding their young, though we could not determine the exact location of the nests which we felt certain were there.

I find further reference to barn swallows nesting on the cliffs in Howes' "Birds of Rhode Island," published in 1899, where the author states: "At the present day this species still nests where it has for years in the chasm called 'Purgatory' at the westerly end of Second Beach, Middletown, building their nests in the little inaccessible crevices of the vertical walls, where they usually select a spot that is protected from rain by a projecting bit of rock." He also states: "No eliff swallows breed in this chasm, a place apparently more suited to them than to the barn swallows." This statement leaves opportunity for further interesting observations in regard to the latter species.

In an article written in 1870 by T. M. Brewer, and published in "The American Naturalist" of that year (Vol. 3, No. 4) reference is also made to the primitive breeding of barn swallows on the cliffs, both at Newport, Rhode Island and Nahant, Massachusetts.

### Birds and Aviators.

Some interesting observations on the movements of birds at great heights have been made by French aviators. It has been now established, according to Mr. Henry Wood, the United Press correspondent with the French Armies, that swallows in flying maintain an average altitude of 700 yds. ducks on the other hand, prefer a greater height, and stick to an altitude of 1,800 yds., or a little over a mile. Green plover maintain at all times an even greater altitude, and in March, during their period of migration, the French aviators have met them at a height of 2,150 vds. Wild ducks in

are particularly interesting. Everyone knows that these birds always fly in single file behind their leaders, but it is now proved that the wild ducks execute every movement with a wonderful simultaneousness and degree of precision. If, for example, the leading duck at the head of the file changes the position of a wing in order to fly either higher or lower, all of the others make the same movement, apparently at the same moment. average speed of wild ducks in flight is proved at 65½ miles an hour when they are flying upwards and 60 miles an hour when flying horizontally, which agrees with the estimate which has been previously made.—Forest and Stream.

## The Slaughter of the Innocents.

BY THE REVEREND MANLEY B. TOWNSEND, NASHUA, NEW HAMPSHIRE.

The most destructive enemy of bird life at the present time is undoubtedly the domestic cat. The cat, like all the Felidae, is a highly predatory creature. Multitudes of birds, especially the young in the nest and those just out of it, fall an easy prev to the cat's insatiable love of killing. Our cities are overrun with vagabond cats. Large numbers have run wild in the woods. subsisting upon the country. The lowest estimate of the number of song and game birds destroyed by cats in the United States every year is 125,000,000. The number is actually nearer ten times this figure. So destructive are cats to game that many sportsmen shoot every cat visible in the woods. This they do through no animosity toward the cat, but in the interest of bird and game conservation.

Two experiences this year on my own grounds brought home to the writer a personal knowledge of the feline peril to the birds. A pair of robins built a nest in the woodbine of my front porch where it was well sheltered by the overhanging eaves. In due time the blue green eggs hatched into four hungry youngsters. Then there were lively times indeed—the parents hustling from morning till night to fill those four wide open mouths. The happy family But one fateful night thrived apace. a neighbor's cat climbed to the nest. snatched the brooding mother from her

little ones and escaped. Then did the male bird show of what stuff he was made. He at once assumed entire charge of the family. From the earliest peep of dawn to the last faint gray of daylight he was "on the job," fetching food for the clamorous growing brood. But as they grew, their appetites increased. The parent bird was unable to get food fast enough and in sufficient quantities. It was a physical impossibility. His stout little heart kept him at it, but no robin could do the work. One day we noticed another robin helping. At first we thought that "father" had got married again for the sake of his children, until we discovered that the new bird was another male, perhaps one that had also lost his mate. The two male robins raised that brood successfully. volley of stones whenever the cat appeared kept her at a distance.

At almost the same time another tragedy occurred at our home. A pair of chipping sparrows built a hair lined nest in the vines of our back porch. The eggs hatched and all was going on well when a maurading cat caught both parents. The young, of course, miserably perished.

The writer is not an enemy of the cat. But he submits that it is high time for this terrible slaughter of the innocents to be stopped or at least greatly minimized. Owners of cats should watch their pets in the birds' nesting season and never let them loose at night, and in the daytime only after a full meal. The most effective way to solve the problem is to do with the cat what has been done with the dog—lic-



Photograph by W. L. Finley, Oregon. CAT WITH ROBIN.

ense it. This would eliminate the undesirables and give legal rights to the legitimate ones. With the vagabonds and tramps out of the way, and the cat population reduced to reasonable numbers, hundreds of millions of birds would be saved to our land. This is no inconsiderable item in these days of food conservation. Insects destroy the crops. Birds destroy insects. more birds, the fewer insects and the more food. Why "save at the spigot and waste at the bunghole?" License the cat, save the birds and increase the food supply.

# Increased Bird Study and Support.

It is an encouraging sign that even in war times the interest in the Audubon Societies and in their support has greatly increased. This is as it should be. Any phase of nature study, any phase of protection of wild life is worthy of hearty support.

The Agassiz Association heartly congratulates the National Association of Audubon Societies upon their good showing and on their efficient work in an important department of nature. Secretary T. Gilbert Pearson says in

his report:

"The entrance of our nation into the world war has called for public service and financial support to an extent never even approached in this country before. Innumerable war charities of the most worthy character have made constant appeals for funds, and huge sums of money have gone into war relief. As a direct result, many institutions supported by the general public have suffered severely. Some have closed their doors, and others have curtailed their activities. Forty-six hospitals in New York City alone are behind in their budgets, and numerous worthy institutions are on the verge of collapse. With this Association it has been different. True, some of our good workers marched away to the war, and some hitherto large supporters have dropped their contributions, but others have come forward to take their places. Now, at the close of our year, it is with much pleasure we announce that in not a single line of our endeavor has it been necessary for us to curtail during the past year, and in most lines of activity we have been able to expand, because of the magnificent support the Association has received, for we have not only held our own, but the sustaining membership has grown 33 I-3 per cent. during the past twelve months.

"The total income of the Association for the year amounted to \$144, 089.21, which is something more than \$30,000 greater than the income for the previous year."

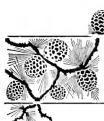
#### Winter Birds in Massachusetts.

A considerable flight of goslawks has been reported in eastern Massachusetts during the early winter months, and a number of great horned owls have come down from the north. An unusual flight of whistling swans has also been reported off the coast. Snow buntings and horned larks appear to be in good numbers in their usual haunts. A few crossbills and pine grosbeaks have also been reported. Ruffed grouse seem to be unusually scarce this winter.

# Eave Swallows Prefer Unpainted Buildings.

An exhaustive article in the September-October number of "Bird Lore" by Reverend Manley B. Townsend of Nashua, New Hampshire, on the nesting habits of the cliff swallow (eave swallow), seems to prove pretty conclusively the interesting statement that these birds prefer unpainted buildings upon which to attach their nests, and that these clay nests when attached to painted structures soon drop off and become abandoned.

The expedition of the American Museum of Natural History to Western China is bringing back some of the richest collections ever secured by a single party. These include more than two thousand mammals, eight thousand feet of moving picture films, and more than a hundred photographs in natural colors. The party, with the wife of the leader for its official photographer, entered regions where no white persons had ever been seen, and collected up to levels as high as fifteen thousand feet.



# THE CAMERA IN NATURE



Nature-Faking With the Camera.
BY RALPH OSBORNE, IN PHOTO ERA.

The amateur photographer who has exhausted the subjects generally found about his home will hail with more or less enthusiasm a new field for his camera-activities. Although there is nothing surprisingly novel about the branch of photography I am about to describe, for it is neither more nor less than "table-top photography," yet it appears that all too few amateurs avail

Yet he is not censured for it, so why should not the amateur photographer be allowed a similar privilege?

The idea of this sort of photography came to me from a desire to do some still-life studies—something a little different from the eternal over-turned basket of fruit, vegetables and the like. While passing an Easter display in a shop-window, it occurred to me that these same chicks and goslings, with which the window was decorated,



THE EARLY BIRD CATCHES THE WORM.

themselves of this interesting pastime. It consists simply in using for photographic models, stuffed and imitation animals and insects that may be picked up in the shops for a few cents.

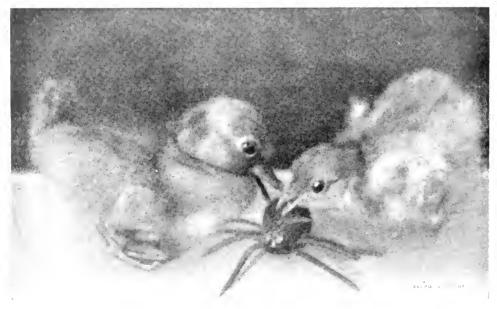
At the outset, it must be said that these stuffed-animal studies are in the nature of a "fake." Yet it is just this very trick that the painter uses when he causes his lay-figures of men and beasts to assume natural poses and then paints them as actual, living creatures.

would make excellent models for my new venture. I therefore set about collecting a stock of what in the theatrical profession would be called "properties." My stock at present comprises a small family of chickens and ducks; a rubber snake that does not look too unreal; a spider whose legs are made of wire springs that joggle like fury at just the wrong time, thus making the photographing of him exceedingly difficult; and a grotesque dog that I dis-



THE TUG OF WAR.

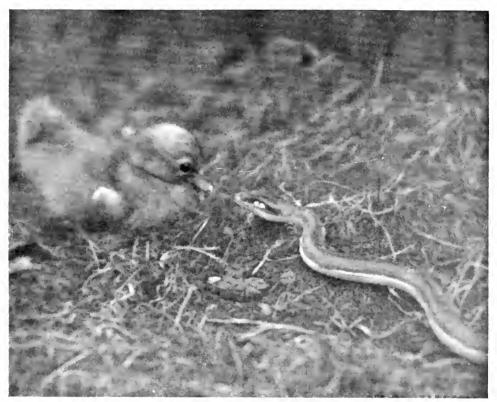
covered in a Japanese shop. Not a very either singly or in combination, will varied assortment, it is true, but I havemake highly interesting studies. Just my eye constantly out for new objects, here, however, let me offer a word of and hope before long to have a trulywarning: Use only those figures that fearful and wonderful collection to have a dull finish, otherwise the light draw from. By searching in the toywill fall on the glazed surface and be and novelty shops, any number of im-reflected back in the photograph in ages will be brought to light that, such a way as to destroy the illusion.



THE BONE OF CONTENTION.

This photographing of stuffed animals and the like has many points in its favor. In the first place it gives one's artistic skill a loose rein to go ahead and create something unusual and worth while. In the second place, it also gives one a chance to show one's skill as a photographer. One is not hampered by being hurried, or by the feeling that the model is getting

As to equipment, very little need be said. It is quite as possible to obtain artistic and natural effects with a pinhole in a cigar-box as it is with the most expensive camera obtainable. The ordinary folding pocket-camera with a portrait-attachment will give a very adequate negative—but one which will need considerable enlarging to get the best of results.

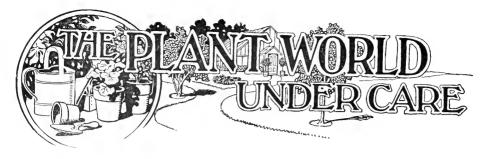


CONSTERNATION OF THE EARLY BIRD

tired—a fact which has been accountable for so many portraits being unsuccessful. The composition of one of these little scenes can occupy as long as one wishes. And last, but by no means least, among these advantages is the fact that it can be done anywhere at any time, out doors or in, in sunshine or artificial light. A very practical method is to set up the composition on a small table. When all is ready, table and all can easily be moved about before a window, and any number of novel lighting-effects may thus be obtained.

Although I do not plan that these pictures shall be actually funny, yet I try to have them gay in character. It seems to me that unless they are at least mildly diverting, their lose their raison d'etre, for even with a tremendous stretch of imagination, they surely cannot be called beautiful. Their office is to divert, and if they succeed in this in a degree, they have accomplished their object.

There are now, in the various provinces of China, one hundred and thirty agricultural experiment stations.



Skating and Picking Strawberries. Hyde Park, New York.

To the Editor:



A. T. COOK

You ask in The Guide to Nature who has had exerience with "ever bearing" strawberries. Let me give mine.

About three years ago I purchased a number of varieties of the so-called "e v e r b earing" strawberries, and

set them out side by side in my garden. One variety proved so far superior to all the others that there was simply no comparison, and I quickly removed the poorer ones.

This variety was the "Progressive." The plants set out in the spring bore

enormously from July into November. Indeed, I picked ripe berries as late as December 8th, and left green ones and many blossoms still on the vines. Their hardiness is truly wonderful. Think of it! Persons skating on the lakes and at the same time I was picking strawberries. I send you a photograph of one of the plants set out in the spring. I picked forty big, ripe berries from it on October 15th, the day on which the photograph was taken, and counted sixty-nine green berries and numerous Hundreds of the other blossoms. plants were just about as good. Please remember that these plants had been bearing since July.

The hardiness of the Progressive almost surpasses belief. Last season I set nine plants in a box of earth raised above the ground. I put no covering of any kind on them in the fall, for I had no thought that it was possible to save them in such an exposed position, but seven wintered safely and bore abundantly during the season. Could



THE ASTONISHING "PROGRESSIVE" STRAWBERRIES.

any better proof of their hardiness be found?

The quality of the Progressive is superlatively good. No richer or better flavored strawberry exists. The great ambition of this variety seems to be to produce fruit early and abundantly. The young plants on the runners often bloom and produce fruit a half inch in diameter even before the plant takes root.

With all its other good features it is probably the earliest strawberry that we have. At all events it has borne ripe berries ten days earlier than any other I have ever had and I have had quite a number.

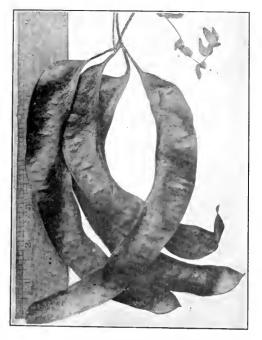
I will only add that these strawberries, owing to their constant growing and bearing, require exceedingly rich ground and careful attention. If a drought comes they demand plenty of water or they will take a rest; otherwise they will not stop to rest till the winter fairly sets in.

Yours for fresh strawberries fives months in the year.

А. Т. Соок.

# Will the Honey Locust ever Disarm? BY ROBERT SPARKS WALKER, CHATTANOOGA, TENNESSEE.

Circumstantial evidence strongly indicates that the honey locust—Gleditsia triacanthos—is the oldest fruit bearing tree in the world It is difficult to imagine the creation of a fruit producing tree and then arming it with such a formidable host of thorns—protectors that really make it dangerous for man and all beasts-that it becomes a fortification which has stood the test for ages and succeeded in defving preving beasts against all advances. But why this protection? In the study of all biological species when we come to dealing with certain parts we must put reason to test. Then why did the Creator first make the locust tree with such peculiarities? This is the only route we have to pursue that we may expect to lead to the most reasonable solution of the peculiarities of this remarkable And then follows the question, Why should the honey locust be so fortified with such horrible jaggers? In the natural state no one dares touch the tree. unless it is to slash it with an axe. Accidents from the penetration of these

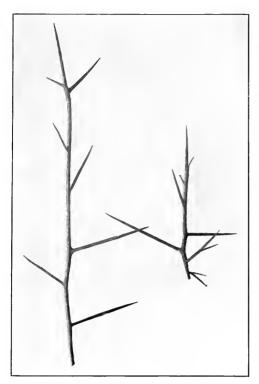


THE FRUIT OF THE HONEY LOCUST.

thorns into the human body have caused death.

But there certainly is a reason for the honey locust being so thoroughly provided with these spines-just for the same reason that the cactus of the desert is finished up with a prickly coat. At the beginning when the honey locust made its advent by direct creation of the Creator of the universe, or by a reason of evolution, there roamed the land animals of immense proportions like the mammoths and mastodons which are now extinct. The honey locust as a tree begins bearing fruit at a comparatively early age. Being the first tree to be created which produced fruit, it was absolutely necessary for it to be provided with some effective protection against the ravages of any of the monstrous animals now extinct. Without any protection, excepting by mere chance, the honey locust could never have flourished. But these armors served their purpose well, and even the largest land animal—vegetable feeders—dared not touch its pods until they had fallen to the ground.

A certain plant breeder states that in the search for spineless cactus one species found growing with spines in sites exposed to wild animals as well



THE THORNS OF THE HONEY LOCUST.

One-half naural size.

protected with spines, and the same species found growing on cliffs beyond the reach of animals as spineless. This serves as a fine illustration in the study of the intelligence in plants. Disuse of these organs caused the cactus to lose them. And then may we not inquire if the honey locust will not one day in like manner throw off its protection and become thornless? Is there any reason today for it wearing such an armor of dangerous weapons? If, through disuse, a plant loses its unnecessary organs, then we may well forebode that in the future the honey locust will strip itself of these barbarous daggers and spears. The tree locust when reaching maturity now loses the thorns up to a certain height, but the severity of the tree's expression caused by the multitude of these fierce looking weapons is horrifying, when one thinks of the probable result of even a frail attempt to scale or bump against its body.

For untold years the fruit of the honey locust has been considered a delicacy by many people. Natives who gather the ripened pods call it the

honey shuck tree. The curved pods. measuring from nine to twenty inches in length, when they become dry and ripened twist and retwist until they eventually squeeze out the seeds which are thrown out for germination. The lovers of its fruit, and those who study the tree, now see no reason for such an armor, and knowing the wounds often caused from the thorns of this old. old tree, those who live in the same community with it are waiting with much patience to the time when, according to Mr. Darwin's theory, the honey locust tree will discard its much dreaded armor.

# Growing Potatoes under Straw. BY MISS BESSIE L. PUTNAM, CONNEAUT

BY MISS BESSIE L. PUTNAM, CONNEAUT LAKE, PENNSYLVANIA.

Some thirty years ago a number of our best farmers tried growing potatoes in straw, some following this practice for a number of years. The ground was prepared as usual, and the seed placed on top, sometimes covered with enough earth to hold it in place and then with a mulch of straw ten or twelve inches deep. They were never cultivated, and unless bugs appeared received no care until digging time. This was easily accomplished by throwing the straw back with a fork, revealing the potatoes practically free from dirt. If I remember rightly, my father abandoned the method after two or three trials, believing that though he got a greater number of potatoes they were smaller. This, however, seemed to be a disputed question. One man recalls a field in which both methods of culture were used on ground of the same nature. The tubers grown in straw proved more soggy in quality than those grown in the normal manner.

Last spring an inquiry in the "National Stockman and Farmer," Pittsburg, Pennsylvania, drew forth a variety of directions and opinions. A few condemned the practice; others reported having used it for years with success. A Western Pennsylvania man writes that after experimenting for ten years, he has found this his best way:

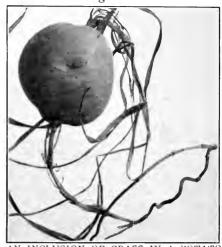
Prepare the ground as early as possible. Use small or medium seed and plant without cutting. The cut potato is more apt to rot. Lay them on a

mellow surface a foot apart each way. Cover with straw so that when it is thoroughly tramped down it will be twelve inches deep. Nothing remains to be done except to keep any stray weeds pulled until digging time. Some of the disadvantages he notes are that unless planted early they do not get up in time to mature and if the season is very wet they may rot. This method results best in a dry season providing the tops cover the ground well before drought commences. "Tubers always grow symmetrical, smooth and clean.' he declares, "and all things being equal, they far outvield ordinary culture."

Another grower, S. W. Jones, Pike County, Ohio, states that growing potatoes between earth and straw is an ideal way to feed moles, ground mice and rats. His method is unique and seems to overcome most of the drawbacks previously mentioned, though it involves a little more labor.

"Plant in the usual way in a shallow furrow so that when potatoes are covered the ground will be level, or better still leave a small ridge to mark the row. When the potatoes come up and are six inches or more high plow and with a hoe draw the earth to the plants, almost covering them and making a good high ridge, having a deep furrow between the rows. Fill this furrow with straw. Any kind will do, either dry or half rotted. Be sure to leave just enough dirt showing so you can see it along the rows between the hills. After you get one good soaking rain the potatoes will never suffer for lack of moisture. In a wet season the ridge is very necessary to keep them from getting their feet too wet. In this way the potatoes grow in the ground instead of next the wet straw and the quality is much better. Several trials of mulching part this way and planting part without straw have shown a difference of one-hundred per cent or more in favor of the part mulehed, the difference all being in the size of the potatoes and not in the number. This method is original with me. I have never seen it tried by others, excepting a few to whom I have recommended it and these have been well pleased by it. Be sure not to plant too early and be sure not to omit either the straw or the ridge. You

are then ready for any kind of a season that comes along".



AN INCLUSION OF GRASS IN A POTATO.

# A Potato Pierced by a Glass Blade. Port Chester, N.Y.

To the Editor:

A short time ago, I read an interesting article in The Guide to Nature in regard to inclusions in potatoes. Last week one of my students brought me the specimen that I send you of a potato penetrated by a blade of grass. This may not be uncommon but I had never previously seen anything of the kind. As we are all much interested in it I thought it might possibly be of interest to other readers,

Very truly, CATHERINE L. MONAGALE.

#### Winter Buds.

What unsuspected beauties line the way, As for our winter walk we brave the cold! At first, grave topics our attention hold, But soon the subtle influence of the day, Doth lead us from our subjects far astray, And we, with broadening vision, now be-

hold

Those beauties, ever new and ever old, That, with the changing year, so briefly stay.

The winter buds, what could more perfect be!

They light the dark, stern branches of the tree

With tips of ruddy brown, of bronze, of green,

Or roseate hue, where shy moosewood is seen;

And opening, they hint anew the key Of life's impenetrable mystery.

-Emma Peirce.



#### On What Part Do You Lecture?

The whole may be geometrically equivalent to the sum of all the parts, but it is not always so from the logical point of view. Suppose that I was to announce that I would give a lecture on mankind. Would you inquire if I were going to divide that into six parts, boy, girl, youth, maiden, man, woman? No, certainly not. You recognize the fact that mankind stands for far more than the assemblage of the two sexes of various ages.

But again, suppose I were to announce a lecture on the nation, would you suppose it to be necessary to divide that into as many parts as there are states and to discuss each in turn? No, certainly not. You recognize that our union stands for something more than a mere assemblage of states. It is a nation with its own distinct individuality, more marked and distinct than the individuality of each state.

But again, if I may use one or more illustrations, suppose I were requested to talk on the City of Stamford. Would you think it necessary for me to discuss road making, coal carting, ditch digging, pipe laying, storekeeping and school teaching? No, certainly not. You recognize the existence of an individuality about the city, greater and more distinct than the sum of its parts. You perceive that the terms mankind, nation, state, etc., stand for a distinct individuality above, beyond and greater than the assemblage of details.

Why not use a similar logic with the term nature? Time and again, people have expressed this idea, "I suppose when you talk about nature, you tell about the bugs, the flowers and the trees." Yes, I do and more. A lecture on nature is like one on religion. It stands for more than a variety of creeds or than a single department of natural science. Nature has a distinct

individuality, a personality and lovableness of her own. A loving child thinks a mother, a father has an individuality different and greater than his hands, his face, his shoes or his watch. It is one of the essential characteristics of the naturalist to think of nature not in detail but as a lovable whole. Do not by mistake think that he does not know the details. He does, but this is another department. He may study the details and be a specialist but when he classifies those details he is a natural scientist.

## You Should be Better than Your Tools.

"I hear you publish a magazine. Do you think that it would give material for work with the pupils in my school?" That inquiry in practically this form has come to the editor from many teachers personally and otherwise. It is not altogether unselfishness that induces teachers thus to think of their children first. There are times when one's self should come first. That is particularly true of a knowledge and love of nature. In this it is the teacher's pesonality that counts most of all. Why does not the average teacher take the amateur naturalist's point of view and say? "I hear that you are publishing much material that will instruct and inspire me in a knowledge and love of nature. I want the magazine for that purpose."

My dear teacher, you cannot give much that you yourself do not possess. To pass nature to children without your own heart and personality is handing out so much dead wood. You must be alive and growing with your cambium layer in active development.

Teachers inquire, "How many children do you think I should take with me on an outing in the woods?" My reply is invariably, "You should several times practise going alone." If the response is, "I do not care about going into the woods: there is nothing

there for me." the reply is invariably, "Do not be so sacrilegious as to take children with you. Do not. Become converted yourself before you try to convert others. If the essence of nature study is not good for you first of all, then it is not good for the children."

Some of the compliments that come to this magazine are painfully jarring because they treat the magazine as so much material to be bought and handed over. This journal stands for personality, for inspiration in the study of nature, not for something merely interesting to be read nor attractive pictures to be admired. It stands for life even more than for something that that life may do. Nature study is not altogether a matter of knowledge nor of materials. It is chiefly a matter of personal inspiration. It is not a thing but a point of view. It is not a daily talk of fifteen minutes in the presence of your pupils; it is living for twentyfour hours a day.

## War Co-operation with Railroads.

Chairman Fairfax Harrison of the railroads' war board, in a statement to the public published today, makes an appeal for co-operation of the people with the railroads in the stupendous task now confronting the carriers, and for patience while the railroads grapple with staggering difficulties yet to be overcome. It should attract the attention and receive the sympathy of every one. To say that upon the railroads rest a great burden in the winning of the war is but to state the elemental. To say that the railroads have demonstrated not only their willingness, but ability to shoulder their load is but to give simplest credit where it is most obviously due.

In his statement Chairman Harrison calls attention, without boastfulness, to some of the facts accomplished by the railroads. They have in the five months of the war hauled 116,000 carloads of freight to national camps; have handled 17,000 carloads of freight for the shipping board; have moved 750,000 carloads more of coal than in 1916, while the general freight traffic was 50 per cent. heavier than in 1915. They have transported 1,200,000 soldiers to training camps. They will move 75,000 car-

loads of supplies a month to these

All this in the face of difficulties of their own, occasioned by serious shortage of the highly skilled labor necessary for railroad operation; of a lack of sufficient cars and locomotives; of a lamentable inability to get adequate equipment while the government has priority in its demands for steel and other material. Even their officers have diverted their attention to government business to the detriment of executive management of their own properties.

The railroads' war board has submitted to the government director of priority and the fuel administrator a list of 450 commodities whose transportation can be dispensed with without inconvenience to the public, and 75 commodities which could be dispensed with, although, admittedly, with inconvenience. Denial of transportation of these commodities will aid the railroads to give greater service to the war. Chairman Harrison asks the public to co-operate.

May he not reasonably expect us all to pay heed to this request, not only to submit without complaining to the curtailment, but even to help it along? It is all for the winning of the war.—The Washington Evening Star.

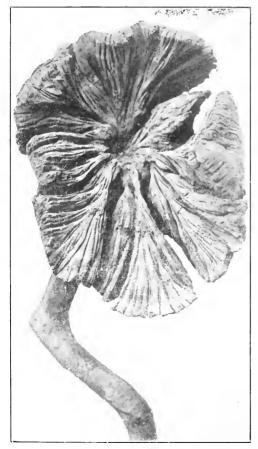
# Where There's Plenty of Rain.

The little island of Kauai in the Hawaiian group may well claim the record for range of climate. The island, which is nearly circular, is only thirty miles across, with an old volcano in the center, some five thousand feet high. On the leeward side of the peak the country has the rainfall of a semidesert, only about twenty inches a year on the average, and in some years less than fifteen inches. But the windward side of the mountain, only fourteen miles away, is one of the wettest spots on earth. The average rainfall is over five hundred inches a year, while in 1914 it passed six hundred inches. This is fifty feet of water each season over the entire country, as against about seven feet for New England, which is one of the best watered portions of the United States. Naturally, the whole region is one dripping bog, on which the rain falls virtually all the time.



#### A Wooden Flower.

A piece of wood in the form of a flower or at any rate suggestive of a flower has been sent to us by Mr. H. E. Deats of Flemington, New Jersey. He writes that he has no knowledge of the curiosity except that it was given him by his aunt, who received it from



SUGGESTS A FLOWER.

a young man who brought it from Mexico. We shall be glad if any of our botanical friends will tell us just what it is, and if others have similar specimens we should be glad to see them.

# The Slimy Salamander.

We are indebted to "Aquatic Life" for the cut of an interesting illustration of the slimy salamander. The photograph was taken by Dr. R. W. Shufeldt, who in an article in "Aquatic Life" states as follows:

"It will be observed that this specimen presents very unusual markings for the species, the white speckling on the upper parts being very numerous. However, the Slimy Salamander is known to show great variation in this particular, some individuals being like the one in the cut, others having very few fine speckles, while still others are blotched with the light color markings. Sometimes the speckling is moderately continued onto the ventral aspect of the animal, where the general color is of a deep lead color or stone gray; for the rest, it is a rich black, as shown in the cut. The tail is round; the eves conspicuously prominent, the species being a slender one of moderate size.

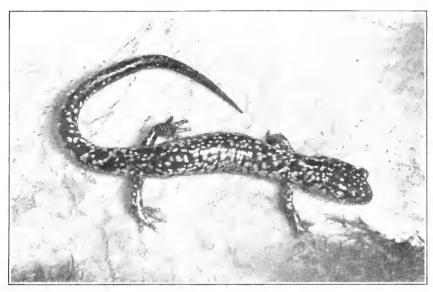
"This specimen measured about five inches in length, half of which being devoted to the tail. This Salamander has rather a wide range, being found from southern Canada to Florida and westward to include Texas. In some sections it is said to be very abundant; but this surely does not apply to the District of Columbia, where I have collected salamanders for many years, and where I have never taken a single individual of this species.

"When trying to escape from the hand, the Slimy Salamander often attemps to do so by quite an active little jump in a horizontal direction; but the attempt is feeble. As a matter of fact, it is a gentle little creature, and, in my eyes, a very pretty one. It has earned its scientific and common names from the slimy exudation from its skin—a clear, sticky mucus, a product of the dermal glands. The species is a typi-

cal land one, and to some extent of nocturnal habits. It will also come out from its hiding places under logs, flat stones, and leaf-masses in rainy weather. Doubtless it lives upon the same

# Wheel Captured by Tree.

BY H. E. ZIMMERMAN, MT. MORRIS, ILL. A wheel was thrown aside in the corner of a barnyard. A tree concluded to grow up between two of the spokes, lit-



AN INTERESTING SALAMANDER.

character of food as do other salamanders allied to it—small worms of various kinds, and certain insects, such as it can capture. In captivity, I doubt not but that it would take bits of raw meat; but I made no trials along such lines, as I had, at that time, quite a list of living things in my study to photograph."

## What are Snails?

AN INQUIRY FROM MASTER HORTON OF STAMFORD, CONN.

Snails are of the order Mollusca, one of the great divisions of the animal kingdom. It includes all the shellfish proper. All these creatures have soft bodies and are not supported by any internal framework that may be called a skeleton. The two shells like clam or oyster are Pelecypoda. The single shell generally in the form of a spiral (snail) is Gastropoda.

Winter does not work only on a broad scale; he is careful in trifles.—Smith,

tle thinking of the predicament it would get into. It can be seen into what a tight place it has gotten itself. One of the spokes has been broken off entirely at the rim of the wheel and pressed back against another spoke. The spoke in front of the tree is also about to break because of outward pressure of the tree.



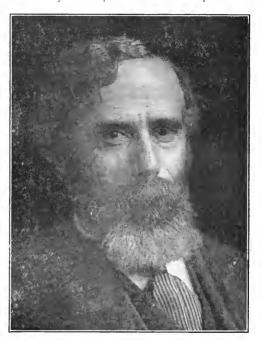
THE WHEEL AND TREE.

# Dr. Henry Marcus Leipziger.

This great lecturer and educator died on December 1st after a long life handicapped by much ill health and a frail physique; but in spite of these obstacles he accomplished an almost incredible amount of work, especially in connection with adult education. He was Supervisor of the great University of the People of New York City, that free lecture course which has grown to gigantic proportions, the attendance being in the millions and the staff including several hundred lecturers. Leipziger, by his peculiar enthusiasm and ability, was able to direct the complicated machinery of the institution so skillfully that not a flaw in the management was discernible. The whole course has become unqualifiedly successful and the admiration of cities and of educators everywhere. This great work has the special and hearty approval of The Agassiz Association, which believes that education is not for life but is life itself. The work of The AA has always been directed, not so that a child may complete an education but that he may begin an education that shall continue through life. The mistaken belief that nature study is for children only has had the approval of The AA only so far as it prepares the child for the employment of the full powers of the adult so that he may then study this great and wonderful world. Dr. Leipziger had a similar opinion in regard to all education. He believed that the public schools should be merely inciters, and that they fail in their mission if they convey the impression that education may be completed within the days of childhood. More than any other man in all the world he carried education into the life of the adult. Some of the most devoted pupils of the great New York

course were elderly men and women. These lectures were given in true university style, and children, unaccompanied by adults, were not admitted.

But just at present another phase of



DR. LEIPZIGER DIED DECEMBER !, 1917.

Dr. Leipziger's great work should be emphasized. He was a masterly teacher of patriotism. He was perhaps more successful than any other man in America in educating the foreigner and in introducing him to American ideals. He gathered members of all nationalities in his numerous auditoriums and there instructed them in the principles of Americanism. His influence among the great medley of foreigners in cosmopolitan New York City was beyond all estimate. His life, handicapped by the weakness of his physique, and obstructed by people who did not understand and therefore did not agree with

him, was an inspiration to any heroic worker in a good cause. He had the genius of success and that very quality made him sometimes misunderstood.

He possessed unbounded love for his fellow man, and was sympathetic in the highest degree. For many years he suffered from tuberculosis, yet he would not for a moment even consider the advice of his physician to leave New York City and go to Colorado, although he knew that there his life would be prolonged. "No," he unhesitatingly replied, "I would better live a shorter life and devote it to the good of my fellow beings than live a longer life in selfishness."

Next to him in his prolonged life of service was his sister, Pauline Leipziger, who for many years was his faithful companion and his support in his labor.

He so thoroughly inspired those immediately active in his great work at the office of the Board of Education, and had so perfected the machinery there, that everything will continue to move smoothly and effectively. Dr. Leipziger in his younger days was a teacher in the public schools, and for several years was Assistant Superintendent of those schools in New York City. He also travelled extensively and investigated methods of industrial education. He had been Supervisor of the Lecture System since 1890.

The Agassiz Association and the editor of this magazine express their sincere sympathy to his workers in the office, to his immediate assistants and especially to his faithful sister.

By way of making its grounds into a bird sanctuary, the State Normal School at Radford, Virginia, has planted its campus with crab apple. dogwood, black gum, cedar, service berry, beech, black haw, thorn berry, wild rose, hackberry, sumac, elder, native and Russian mulberries, and other like plants that furnish shelter, food or nesting places for feathered visitors.

Certain beaches of the Carolina coast have been shot over for so long by wild fowl hunters that the sand itself has become mixed with lead. The birds swallow the pellets and are slowly poisoned with all the usual symptoms.

# Enjoying the Winter Sunshine.

BY C. D. ROMIG, AUDENRIED, PENNSYL-VANIA.

On a Sunday late in January, 1916. I wandered over some old hunting grounds and at a choice spot I sat down beside a tiny stream to eat my lunch. The day was raw and cold, freezing cold in the shade and barely thawing in the sunshine at noon. However, the sunshine had tempted me out and I tried to make the best of my outing. After my lunch I sat down close to some large rocks, out of the wind and right in the sunshine. I soon realized that I had found a warm, cozy spot, so I hunted up some dry poles with which I made a bed and there I rested unusually well for more than four hours, when clouds appeared and cut off sunshine.

I am not fond of cold weather but I am fond of the outdoors and the warm sunshine. Being used to steam heat, I was rather tender for such an experience as lying down surrounded by snow for four hours even in the sun. But I left the spot reluctantly when the clouds began to thicken.

The wind was strong but I could not feel its movement; I felt only the warm sunshine. I began to study the reason for that. I found that Indians had used that very spot. Hunters had found shelter and had made camp fires there. Once I found a big and lively black snake sunning itself there early in the spring, yet all these do not indicate that the place was enchanted as the spot about the rock was not really inviting.

The whole thing was due to the location and the position of the rock, yet my unusual experience may be explained by the following method. Take a long book, lay it flat in the sunshine and lift the upper lid just enough to let in all the sunshine all day. The book should be laid about east and west and open toward the south. In winter it need not be opened as much as in summer since the sun is low in winter.

By experimenting with a suitable book or with boards, plans could be formed for a structure of any suitable material or dimensions and cost. I would use lumber, stone or cement. I would call it a sun wall, and my first structure would be more than seven feet high and twenty-five feet long, with ends and front open and without pillars. The lean of the wall toward the south and the exact east and west direction, I would get by all day experiments with the book.

For cold weather the idea is to keep out the north and west winds and let in all the sun-hine. Hospitals and sanitariums and others who are interested have here an idea on which more might be said that is worth while.

Like most of us, I have tried all sorts of places in the sun on cold days but have always found the wind and the cold predominating. It is hard to believe that there is anything new under the sun along these lines, but several trials have convinced me that the subject is worth studying, especially for the sick. I have given it much thought, and am prepared to write another article on building plans along these lines, in considerable detail if desired.

In these days of trenches and war a step toward peace and sun-hine should be acceptable. I believe this idea has great possibilities for the utilizing of cement and iron and other building material, and I can imagine such structures the length of a city block in every burg, like a city park, and well crowded, while other structures of the kind might be built in parallel rows on the grounds of hospitals and sanitariums. I consider this the best subject upon which I could dwell for the coming winter and the future. Army men will find the use of this idea a luxury in camp life. Let them use soil and boards or any other suitable material. Details are available as aforesaid.

#### Miscellaneous Contributions.

Bertolf Brothers, Sound Beach: Two caterpillars of the royal walnut moth (Citheronia regalis) known as the hickory horn devils, caterpillar of the Callosamia promethea moth and a walking stick insect (Diapheromera femorata).

Mr. A. T. Cook, Hyde Park, New

York: Chips made by beavers.

Master Knapp, Sound Beach: Turtle. Miss Bessie L. Putnam, Conneaut Lake, Pennsylvania: Mountain ash berries, mountain ash berry jelly and everbearing strawberries. Mr. Ernest W. Austin, Stamford: Caterpillar of royal walnut moth.

Mr. G. Fred Farnham, Sound Beach: Female spider (Argiope riparia) and caterpillar of Sibine stimulea moth.

Mr. Nelson Palmer, Sound Beach: Kingfisher injured by striking wire.

Lieutenant C. Dana Potter, Sound Beach: Somewhat rare larva that imitates twigs. Brought from Home Guards' camp.

Mr. Stephen I. Clason, Sound Beach: Collection of minerals for our mineralogical fireplace, from quarry near Wil-

limantie, Connecticut.

Mr. Robert S. Walker, Chattanooga, Tennessee: Seeds of sensitive brier (Mimosa).

Captain Allan F. Kitchel, Sound Beach: Quadruple ear of sweet corn.

Miss M. Van Gaasbeck, Mt. Vernon, New York: Collection of mosses and lichens from New Hampshire, Lake Sunapee and White Mountains.

Mrs. Smith, Tower House, Sound Beach: Tarantula found in bananas.

Miss Jean Herzberg, New York City: Walking stick insect.

Mrs. Hattie Hull, Williamsport, Pennsylvania: Hornets' nest similar to the one pictured in the June, 1917, number of The Guide to Nature.

Miss Lena Artz, Port Republic, Virginia: Potato seed balls, dodder and willow cone galls.

Master Roger Reynolds, Riverside, Connecticut: Bat.

Mr. Isaac Ferris, Riverside, Connecticut: Load of wood for fireplace, etc.

Miss Catherine Palmer, Sound Beach: Sea urchin.

Mr. George Maurer, New York City: A pair of tweezers made of wood for removing materials from bottom of aquarium.

Dr. W. V. Nichols, Oceanside, California: Nine specimens of minerals—eight from California and one from Arizona.

An avenue of birches

Made the roadway a thing of grace,
Their slender boles and silver stoles
Etherealized the place.

Could only this sylvan beauty
Extend for miles, not feet,
We need not stray from the broad highway.
To find a cool retreat.

-Emma Peirce.

## Additions to Our Membership.

#### Corresponding:

Miss Annie Cloyd, Sewickley, Pennsylvania.

Mrs. Flora May Tuttle, Osage, Iowa. Miss Edna L. Bogne, Montelair, New Jersey.

Miss George Ann Lillard, Chicago, Illinois.

Mr. Leo E. Mingus, Battle Creek. Michigan,

Mr. Maurice L. Henry, Vandalia, Illinois.

Mr. Elmer Kern Smith, Chattanooga, Tennessee.

Mr. Richard Waltham Hanes, Stamford, Connecticut.

Mr. Robert Marrison, Cataraqui, Ontario, Canada.

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Mr. A. T. Cook, Hyde Park, New York.

Captain Allan F. Kitchel, Sound Beach, Connecticut.

Mr. Henry L. Stoddard, New York City.

Mr. Charles O. Miller, Jr., New Canaan, Connecticut.

Dr. Charles B. Keeler, Darien, Connecticut.

Mrs. Charles Tarbell Dudley, Greenwich, Connecticut.

#### LIFE:

Mr. Charles O. Miller, Stamford, Connecticut.

#### The Hills.

The hills, the everlasting hills, Are round us, fold on fold; Their beauty and their influence Are paramount, untold.

Their rounded contours bound the view,
Their slopes are bathed in light,
Their forms, though lowly through the day,
Loom mountainous at night.

Tall pines add dignity to some, On others grainfields wave; On all are many hardy things, That winter storms may brave.

The sunshine glorifies them all, Cloud shadows linger there; When Autumn weaves her tapestries, They are divinely fair.

The hills our bulwarks are by day,
Our sentinels at night;
Almost an ceric look they have.
When bathed in soft moonlight.

We find them so dependable,

They give us peace, not thrills;

For grandeur dwells on mountain heights,
But friendliness in hills.

—Emma Peirce.

# The Wintergreen Flag.

At a recent display of the flags of all nations several foreigners were present, each eulogizing the flag of his own country. An American said, "Among them all, the United States flag, aside from what it stands for, is really the most beautiful. It is a work of art. There is no other flag in the world so beautiful." A critic said, "I never could see anything very wonderful about the United States flag. To me it suggests a stick of wintergreen candy with its alternate stripes of red and white." The ubiquitous small boy piped up, "Say, Mister, 'taint that kind o' wintergreen 'cause it makes everybody sick that tries to lick it, and that kind don't."

# It was not Johnny's Shortcoming.

A mother wrote to the teacher, "I think my Johnny is not trying as he should be." The teacher replied, My dear Madam: you are entirely mistaken. Johnny is the most trying pupil I have in my school."



Rising Floods and Falling Torrents.

In the sense that every rose has its thorn, the location of ARCADIA in Thoreau's sanctum sanctorum, a swamp, has at times serious drawbacks though taking the year all together we much prefer the lowlands to the highlands. One consolation is that we evidently have the sympathy of our fellow townsmen, for at almost every meeting of the Sound Beach Association there is a deal of talk about surface drainage. especially when the water over the sidewalk and road requires knee boots or a boat. Our nature park, Nymphalia, the garden and other parts of ArcAdA are at times in good navigable condition. We always try to look on the pleasant side of things and mentally picture the beautiful Venetian scenes if we had a liberal supply of gondolas. But not having gondolas. we must content ourselves with rubber boots; they are needed when we must shovel coal into our furnace with water a foot deep in our cellars. But these temporary rising floods add to the variety of life. We try to look complacently upon the situation, and hope that sometime this talk about surface drainage, clogged up gutters and about other things that sound good in vehement oratory will materialize at the end of a shovel and a crowbar.

Serious as this situation is at times. the ArcAdiAns have become so thoroughly accustomed to it, and are withal of so generally cheerful a disposition that they have never lost much sleep on account of these floods which occur on an average three times during the year. So long as the torrents fell on golf grounds and other near-by water sheds, we have been philosophically taking the brunt of the floods of things. But when Old Mother Nature with a long dry spell in the summer time warped all the fragile clapboards on our roofs (they never were shingled) and If only with a line a day?

then with the autumn rains drenched every part of the attic and consequently of the rooms below, we were driven. not quite to desperation, but to a requisition of all the pots, pans and kettles on the premises. In one of the storms in September, something like twentyfive dollars worth of damage was done to one part of our library, and much of the scientific apparatus, papers, files, etc., in various parts of the office and laboratory was seriously injured. never rains but it pours," is literally true not only in things aquatic but in things financial. It was between the two fires of the Second Liberty Loan and the Y. M. C. A. War fund, and therefore we knew it would not be right to speak out in meeting with a general cry for "Help, help; it is raining on us," so we confidentially revealed the situation to a few chosen friends and, bless them all, they responded with checks even in these strennous times.

Though we may not be high and dry we are now dry on high. The work has been done skillfully and efficiently by our good friend, Mr. Stephen I Clason.

Enclosed find my check for which please send me The Guide to Nature beginning with the November issue. Thought I couldn't afford it, but think now I can't afford not to take it.—Bert Carmony, Shelbyville, Indiana.

I felt that I could not afford the magazine this year, but do not see how I can do without it. The articles on knowing the starry heavens are intensely interesting.—Miss M. Inez Lee, Plainfield, Iowa.

Wherever we go, wherever we look, Is Nature spread, an open book; Why not study her while we may,

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IN THE BEAUTY OF MEADOW AND MOUNTAIN, By Charles Coke Woods, New York City: The Methodist Book Concern,

An attractive book, well printed on high grade paper and profusely illustrated. It pleasingly mingles knowledge and sentiment. The author has brought both head and heart, and both in earnest, to the study of nature. The arrangement is good, the dainty little sketches are appropriate, the whole spirit of the work not only is rapturous in stimulation for the love of nature but it sets one to thinking and incites a desire to know. Much good poetry is scattered through the volume.

The American Annual of Photography, 1918. Edited by Percy Y. Howe. 57
East Ninth Street, New York City:
George Murphy, Incorporated.

This annual visitor is welcomed by the enthusiastic photographer. It teems with specimens of expert work, with text that tells the reader what to do, how to do it, and how to approach the work in the right spirit. For the photographer that cares only for a souvenir, and snaps everything indiscriminately, this book will be of benefit in showing him the error of his ways, and in getting him started in paths that are really photographic. But for the camerist who cares for his art, who loves photography for itself as well as the mere portrayal of something the book is a delight not only because it is informing but because it is stimulating and satisfying to professional pride.

Down the Venr. By C. Dul'ay Robertson.

New York City: Methodist Book Concern.

If I were riding on a trolley car in a foreign city far away from all my friends, I could perhaps sit and admire the personal beauty and geniality of strangers, I could gaze from one to another and note the good points of their attire, the color of their hair, the expression of their faces, and listen to their conversation one with another, but I do not believe that I could love those people just as the Lord made them, without making at least some effort to know some specific details about them. I should like, before giving my heart to them, to know some of their characteristics.

know some of their characteristics.
Yet here is Mr. Robertson who loves nature as he might love a stranger. He makes no effort to know the finer, detailed, loveable characteristics. He says:

"This writer is no botanist, or entomologist, or meteorologist, or scientist of any sort whatever. He loves the good world as God made it, and the year, to him, is a pathway of delight. He cannot tell you the Latin names of flowers and birds and insects, nor the scientific words for 'cloud' and 'snowflake' and 'raindrop;' but he loves to look at these things and finds them well worth looking at."

It is not Latin names that make the scientist. If one merely gazes at a cloud, at a raindrop, he is to a certain extent a meterologist. The author has filled a good book with praises of nature and so far as it goes it is good praise. The reviewer can only say that the book, in a eulogistic sort of way and so far as it goes, is praiseworthy.

By the Sea.
BY CAROLINE CLARK HINTON, NEW YORK
CITY.

I walked by the sea alone, And the sun upon the sea Was reflected in my eyes, And in my ears Beat the pulse of its surging depths.

At night I came again to the sea, Darkness and starlight brooded above. Peace entered my soul, And my heart was glad As I walked by the sea with God.

#### Rhymes of a Nature Student.

The camel is a curious bird:
Its wings are in its heels.
It scoots across the desert sands
No matter how it feels.

\* \* \* \* \*

The fly has three thousand eyes, A man but two; That makes one hard to swat For me and you!

Little skeeter fly away
Come and bite some other day!

The snake he takes but little room
And does a lot of good:
He catches bugs and rats and mice
And uses 'em for food.
The poor little bee
Who lives in a tree
That shades the rippling river
Works all its days
And never plays,
And has but one arrow in its guiver.

—D. C. S.



FEBRUARY

VOL. X, No. 9

EDWARD F. BIGELOW

MANAGING EDITOR

Published Months to

THE AGASSIZ ASSOCIATION

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[From as Editorial in "The Popular Science Monthly."]

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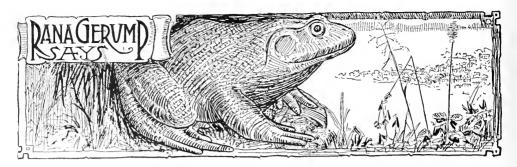
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A Justifiable Pride.

The J. R. Johnson Taxi Service of Greenwich, Connecticut, have been advertising in some other Greenwich publications that in the heavy snowstorms of December they did not increase their Though the advertisement for rates. some unaccountable reason was not sent to us, we feel that there is so much of public merit in the announcement as to make it worth while for us to give the company a free advertisement, if these commendatory words may be so considered. The fact that the company kept their rates unchanged during one snowstorm is not in itself a thing to boast of except when one compares it with the conduct of other taxi companies in Greenwich. The Johnson Company did what they should have done. Praise to that company is only an indirect reprimand to those that, in the humble opinion of the editor of this magazine, did an unjustifiable thing. As a matter of public service there is no doubt that the storm was a trial to the machines, it may have called for a little more gasoline and have increased the expense, but that is one of the exigencies of a public service business. A taxi company is in the class of public carriers and is no more entitled to double their rates when a snowstorm happens to come along than is a trolley car company or a railroad company or Uncle Sam in his postage The editor of this magazine called another company with which he had been accustomed to deal, supposing the rate would be fifty cents. Imagine his astonishment when he was informed, after it was too late to change the order, that the charge would be just double that amount. If so pernicious a principle were put into general practice, we might expect our grocer to charge in a snowstorm six cents for a

yeast cake instead of three. we should call the doctor he would say, "I will come for ten dollars instead of five dollars." On the same principle the clothier, the butcher, the baker, the candle-stick maker might all announce that they had doubled their price because the snow was falling and the office boy had difficulty in getting in to light the fires. It is neither right nor expedient to increase rates because of every little difficulty that occurs. We have not increased the price of subscription nor the price of advertising, because we believe the present emergencies of a war to be only transcient, that paper and cuts photographs will sometime—we hope in the near future—drop back to the But the increase to cover several months' difficulty is surely more justifiable than an increase in only a temporary trouble. The world war seems to be making matters unsteady enough without having every little snowstorm increase our anxieties. We say therefore that the J. R. Johnson Taxi Company did only what it was their duty to do, but when compared with what some of their competitors did the company deserve praise.

Where to Buy Seeds.

There are many good places at which seeds may be obtained, but one of the best, as we have found by experience, is the house of Henry A. Dreer, Philadelphia, Pennsylvania. Attention at Dreer's is always prompt and courteous, and the seeds are always of good quality. Doesn't this embody every desirable quality in a good seed house? No, not quite. An important factor is a beautiful catalogue. Such a book becomes a horticultural and agricultural textbook. Nothing of the kind is more attractive than Dreer's. We suggest

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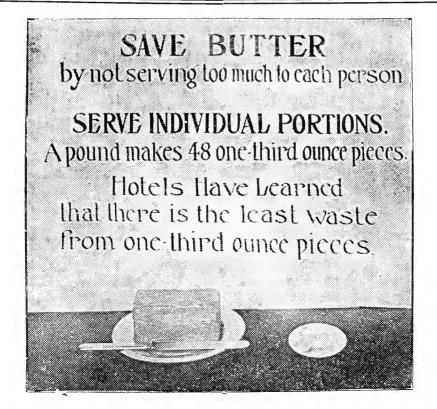
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that every reader of The Guide to Nature send for this catalogue. Kindly mention the fact that you do so at the request of The Guide to Nature. It will not take long to say a good word for this magazine, and it will please the seed house management, because they think that there is no little nature magazine better than The Guide to Nature. They have shown that appreciation practically by placing an advertisement in our pages, and we should like to reciprocate with the expression of our good will.

## The One Man for Jobbing.

Mr. A. C. Arnold of Stamford, Connecticut, has earned the title of "The Man Who Does Everything." He is a general jobber, especially good in repairing furniture, laying carpets and oilcloth, and renewing the old-fashioned flag bottom in chairs. Probably no man in the community has given a longer service or had a greater variety of jobbing work than Mr. Arnold. He has rightly carned his title.—Advt.



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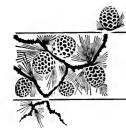
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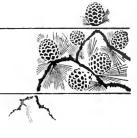
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# STAMFORD



# AN EXPONENT OF EFFICIENCY AND SERVICE.

Stamford Has Lost One of Her Most Prominent and Loyal Citizens in the Death of the Honorable Edwin L. Scofield.

Honorable Edwin L. Scofield died at the Stanford Hospital Monday morning, January 14th, following an operation for appendicitis. Mr. Scofield rallied from the operation with a vitality unusual for his sixty-six years, but later a paralysis of the intestines defied the skill of several of our most eminent physicians and his death took place some three days after the beginning of the intestinal trouble. He leaves one son, Captain Edwin L. Scofield, Junior, U. S. O. R. C., who was with him at the time of his death and, with Mrs. Fannie F. Glendenning, Mr. Scofield's housekeeper for a number of years, had been almost constantly in or near the sick room since the operation.

Mr. Scofield was a man of remarkable ability, loyalty and high civic ideals. In his profession as a lawyer he was generally regarded as a leader. His ability ramified into various channels of doing good to others. He was prominent in securing recruits, raising funds for the Red Cross, floating Liberty Bonds and putting into effect measures for the welfare of Stamford men in the service. He was Chairman of the local Advisory Board of the Board of Registration, and his duties in this position and in connection with various other patriotic endeavors kept him very busy. He held a long list of prominent offices for city and state but was especially active in work for his own beloved city. "The Daily Advocate" of Stamford well sums up the general public regard in the following words:

"Mr. Scofield made and preserved very close and genuine friendships. Those who were nearest to him can tell best of his kindness and thoughtfulness, his gentle, considerate nature, his share in the troubles and sorrows of others. It is because of these traits of his character that many eyes were moist when the sad news of his death came today. True friends are never too



THE HONORABLE EDWIN L. SCOFIELD DIED JANUARY 14, 1918.

Cut by courtesy of Gillespie Bros., Inc.

numerous, and men like Edwin L. Scofield are so few that his passing away must be regarded by many as a calamity. They will miss a delightful companion, genial, sympathetic, high-minded; a worthy son of old Stamford, and a sterling patriot."

A characteristic of Mr. Scofield remarked upon by many was that he grew better and better as he grew older. Instead of lessening his services with advancing years he entered more actively and, from the benefit of all past experience, more efficiently into his pro-

fession and especially into all forms of city and state and national welfare. Many men seem to slow down when they pass the sixty mark. Those most intimate with Mr. Scofield speak of his increasing enthusiasm and devotion as being perhaps his more marked characteristic.

From the nature point of view his most distinguished service to this community was the chairmanship of the Board of Trustees of a \$50,000 fund to carry out the wishes of his client, the late Robert Bruce of Greenwich, in development of his castle-like home into a museum for natural history, history and art. Under Mr. Scofield's leadership the Board of Trustees has this past summer, notwithstanding the strenuous war times, made extended changes in that home and fitted it with cases to a total expenditure of some \$35,000. The Board of Trustees originally consisted of five members—Mr. Scofield, Chairman, and Commodore E. C. Benedict (resigned), William J. Smith (deceased) and Messrs. E. C. Converse and W. H. Truesdale. Of the original Board Mr. Scofield's death now leaves the Bruce Museum in the hands of Messrs, Converse and Truesdale together with the Selectmen of the town. The editor of this magazine had been assisting Mr. Scofield in the development of the plans for more than two years and is consequently familiar with his desire to benefit this part of Fairfield County by the establishment of a thoroughly efficient and well equipped museum.

Mr. Scofield was actively interested in the work of The Agassiz Association and expressed his appreciation not only in words but in substantial aid.

\* \* \* \* \*

From the address by the Reverend A. G. Walton at the funeral:

"Mr. Scofield had a deep interest in all social movements and philanthropies. The hospital on the hill, of which we are so justly proud, is there largely through his efforts. It is common knowledge that it was the confidence which Judge Clason had in Mr. Scofield, and his advice, that caused that noble citizen to give generously that the hospital might be built. Through many years Mr. Scofield has closely

identified himself with the hospital. He has been largely responsible for its successes and has upheld in it its vicissitudes. It is not going to be easy to fill the chair that he has left vacant as President of the official board. Had he done nothing more than to foster this valuable institution, he would have been worthy of our lasting esteem and affection."

## Alone with the Stars.

To go into solitude, a man needs to retire as much from his chamber as from society. I am not solitary whilst I read and write, though nobody is with me. But if a man would be alone, let him look at the stars. The rays that come from those heavenly worlds will separate between him and what he touches. One might think the atmosphere was made transparent with this design, to give man, in the heavenly bodies, the perpetual presence of the sublime. Seen in the streets of cities, how great they are! If the stars should appear one night in a thousand years, how would men believe and adore; and preserve for many generations the remembrance of the city of God which had been shown! But every night come out these envoys of beauty, and light the universe with their admonishing smile.—Emerson.

# The Anassiz Association. Additions to Our Membership.

Sustaining:

Mr. Paul M. Barrows, Stamford, Connecticut.

Mrs. Paul M. Barrows, Stamford, Connecticut.

Miss Elizabeth D. Ferguson, Stamford, Connecticut.

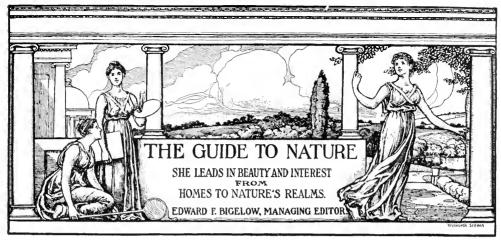
## Miscellaneous Contributions.

Mrs. D. T. Woodbury, Springdale, Connecticut: Mounted northern shrike. Mr. H. E. Deats, Flemington, New

Jersey: Wooden flower.

Mrs. Lillian Dyer Thompson, Cambridge, Massachusetts: Three microscopial mounts of radula and their accompanying shells: also one diatom mount.

Mr. Arthur S. Baiz, Sound Beach, Connecticut: Wooden flower.



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Volume X

FEBRUARY, 1918

Number 9

# How Honeybees Produce Honeycomb.

By Edward F. Bigelow, ArcAdiA, Sound Beach, Connecticut.

Honeybees gather principally two kinds of material-nectar and pollen. They also gather gum, the sticky exudation of buds, etc. This is called propolis and is for coating over the inside of the hive, filling cracks, etc. It is also mixed with wax to strengthen the comb, and applied to cells for "varnishing" and strengthening. The chief material for the building of the comb and for the honev is the nectar from the nectaries of flowers. Pollen, that wellknown mealy material from the stamens of flowers, is used for the more solid food for the larval honeybees, on practically the same principle observed when other larvae feed on the solid parts of plants, as, for example, common tent caterpillars on leaves.

It is well-known that the caterpillars of moths and of butterflies feed on leaves, while the adults sip only a little nectar from the flower nectaries. So it is with the honeybee. A large part of the diet of the growing bee in its larval or caterpillar stage, is the solid part of the plant, of which it selects the most refined portion, the pollen. Nectar is transformed into honeycomb for the protection of the eggs of larval and

pupal forms, and for storing the honey.

When the honeybee is to transform the nectar into honey it takes the nectar into its honey sac, carries it to the hive and regurgitates it into the cell. When the nectar is to be transformed into comb it is swallowed and passed on beyond the stomach sac, through what is known as the stomach mouth. The nectar then goes through the processes of digestion, and enters the blood or the body fluid analogous with the blood, for the nourishment of the bee. But as is well-known, from blood other products may be obtained by the action of certain glands, as, for example, milk. The honeybee obtains comb wax from the blood by the action of certain wax glands. These are eight in number and are situated on the lower side of the abdomen. From a recently hived swarm, bees may be obtained that will show thin films of pure wax somewhat resembling mica scales, and projecting for a microscopical distance from between the abdominal plates. It is an expensive product, demanding much food, and taxing to the extreme the bee's vital energy. The original estimate was that the bee must eat twenty

pounds of honey to produce one pound of wax, but more recent investigators are inclined to lower the estimate, although some investigators still call for fifteen pounds. The secretion from these wax glands is in liquid form that

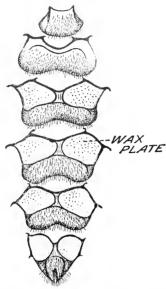


Fig. 1. Ventral abdominal plates of a worker bee dissected to show the position of the wax plates.

by the action of the atmosphere soon hardens. The wax is then extremely brittle, and not adapted directly to the making of comb. It must be thoroughly worked over by the honeybee's mandibles.

Until about two years ago it was not known exactly how these scales are

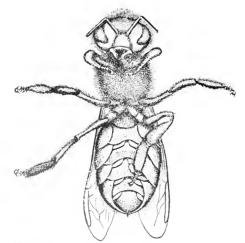


Fig. 2. Ventral view of a worker bee in the act of removing a wax scale. The two middle legs and the right hind leg are used for support, while the left hind leg removes the scale.

withdrawn from between the abdominal plates. Some observers asserted that they are scattered on the bottom of the hive, and collected by other bees as they might collect material outside of the hive. Other observers taught that the wax is passed from a wax producing bee to another bee that then molds it with her mandibles. About two years ago the Bureau of Entomology, Washington, D. C., published a remarkable circular to record the original investigations of Dr. D. B. Casteel,

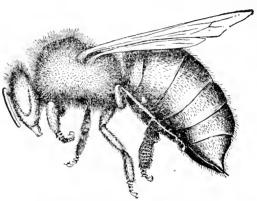


Fig. 3. Side view of a worker in the same posture as that shown in figure 2.

entitled "The Manipulation of the Wax Scales of The Honey Bee."

The workers never assist one another in the process of removal. The scales are extracted by the bee that secretes them, and by this bee they are usually

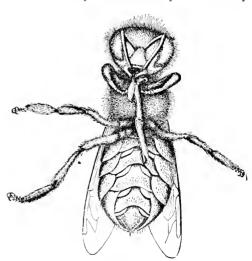
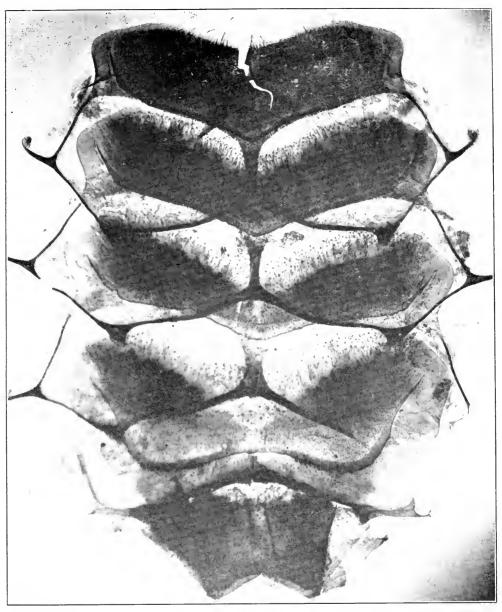


Fig. 4. Ventral view of a worker bee showing the position of the wax scale just before it is grasped by the forelegs and mandibles. The scale is still adhering to the spines of the pollen combs. The bee is supported upon the two middle legs and upon the hind leg which is not removing the scale.



THE BEE THAT PRODUCE THE WAX SCALES.

masticated and added to the comb. The bee removes them while she stands on the comb or on its support. One of the hind legs is raised, and its flattened portion, known as the planta, is pushed along the underside of the extended abdomen until it comes in contact with a scale protruding on that side. Steady pressure is now exerted against the abdomen and toward the rear. The result is that the scale is drawn out of its pocket and remains attached to the sharp, bristle-like hairs on the leg.



Fig. 5. Side view of a worker bee in the same posture as that shown in figure 4.

This hind leg, now bearing the scale, is quickly bent forward toward the head, and the scale is grasped by the fore legs, or by the mandibles. Sometimes it is apparently removed from the

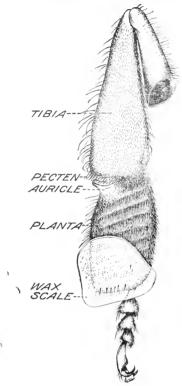


Fig. 6. Inner surface of the left hind leg of a worker bee, showing the position of a wax scale immediately after it has been removed from the wax pocket. The scale has been pierced by seven of the spines of the pollen combs of the first tarsal segment or planta. The jaws of the so-called wax shears or pincers are formed by the pecten spines above and the surface of the auricle below.

hind leg by the mandibles alone, but usually the fore legs aid in the process, and also manipulate the scale while the mandibles masticate it. After the scale



PHOTOGRAPH OF THE SPINES DIAGRAMMATI-CALLY SHOWN IN FIG. 6.

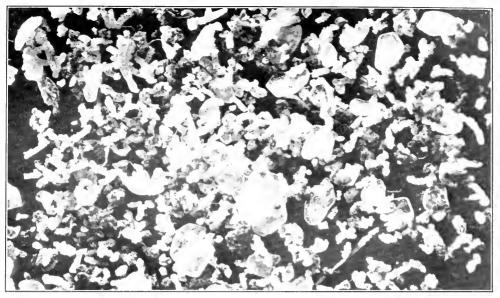
has been throughly treated, the wax is applied to the comb. It is difficult to capture a bee just as the scale has been impaled by the tiny spines at the end of the leg, but the experimenter was in a few cases successful in doing so, and found that the scale had been pierced in several places by the strong spines that project from the lower rows of the



ONE OF THE TWO MASTICATING MANDIBLES OF THE HONEYBEE.

pollen combs of the leg, as shown in the illustration. Regarding the scales that have been accidentally dropped the author writes as follows:

"In any hive where comb is being constructed rapidly many free scales will be found upon the bottom board and upon the lower bars of the frames. If these scales are examined microscopically some will be found without marks upon them, having evidently been loosened from their pockets accidentally during the movements of the workers over the comb and around the hive. Others will show certain marks and scratches upon them, indicating that they were voluntarily removed from the pockets, and in some cases they may bear the marks of the man-



WAX SCALES AND WORKED OVER "CHIPS" OF WAX THAT THE BEES HAVE DROPPED TO THE BOTTOM OF THE HIVE.

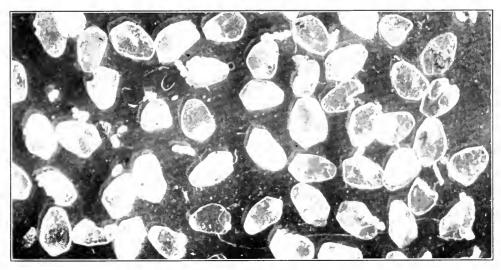
These "chips" from the circular coping or elsewhere are always circular. If the bees cut the angles (not press them) some of the "chips" would be sharp or angular.

dibles, showing that they were dropped during the process of mastication. Most of the scales which are marked at all are indented with several small punctures showing the places where the spines of the pollen combs have pierced them. These scars are exactly similar in appearance to those on the scale shown in the illustration.

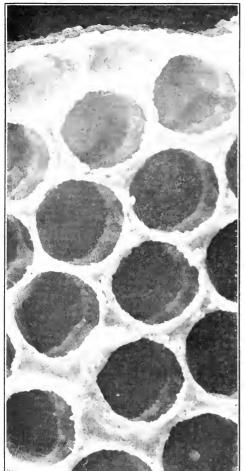
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"As a rule the wax which is deposited upon the comb by the producing bee is first subjected to the action of the mandibles and mixed with saliva. Such, however, is not always the case, for some bees appear to be 'careless' and will mingle small unchewed portions of scales with the masticated wax. Indeed, it is not uncommon to find nearly perfect scales mixed with the wax of a newly made comb. The masticated wax itself is spongy and flaky when it is deposited by the producing bee and will later be reworked, thereby gaining greatly in compactness and smoothness.

"The entire process of the removal of one scale, its mastication, and the



WAX SCALES ISOLATED FROM THE "CHIPS." A compound microscope more clearly shows markings and scratches made by mandibles and spines.



THESE ARE SELECTIONS FROM A LARGE NUMBER OF PHOTOMICROGRAPHS OF HONEY-COMB IN ALL STAGES OF BUILDING, SHOWING CRUDE CIRCLES OF WAX. NOT ONE HEXAGON HAS YET BEEN FOUND.

application of the wax to the comb is completed in about four minutes, only a very small portion of this interval being consumed in the work of extracting the scale from its pocket and passing it to the mouth, except in cases in which scales appear to be removed with difficulty.

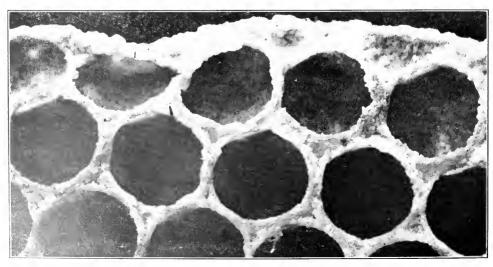
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"Scales which drop are likely to remain for a long time, and some may even be carried out through the entrance with waste material. If, however, scales accidentally dislodged or voluntarily removed fall on the comb among the comb workers they are often noticed by them, picked up, masticated, and built into the comb. If a scale slips from the pollen combs or is fumbled by the bee before being grasped by the mandibles, it is seldom recovered by the worker to which it belongs unless it falls very near her or she stumbles upon it accidentally." \* \* \* \*

## MY THESIS.

In my positive assertions, it is but fair to the general reader to state that many expert beckeepers do not agree with me. My claims have even brought ridicule from some; others have advised that I investigate further before publishing. This article is the result of about six years of study, and I publish it to bring out definite approval or objections as guidance in further study. I seek merely the truth, not victory of claim or argument.—E. F. B.

In making the comb, the honeybees never work in hexagons, but always in circles. Poets and philosophers have for ages expressed admiration for the



" M.I. SHI, DOES 18 TO MAKE A CYLINDER OF WAX AND A MIGHTY CRUDE ONE AT THAT."

wonderful skill of the bee in making angles and perfect hexagons in their comb cells. There are two errors in such commendations. First, the bee does not voluntarily make hexagons. The hexagons are the result of physical in series—that is, one after another—take the little plates of wax secreted from between the body scales and pack them into circles as crude as a child would make when she makes her mud pies. Under the microscope there is

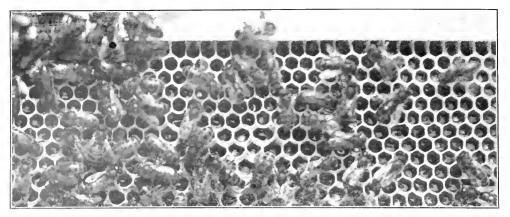


THE BEES, LIKE HUGE GUN SWABS, COMPARED WITH SIZE OF CELLS, PRESS IN TO CLEAN THE SIDES.

It is this going in with the consequent pressure on all sides when the wax is warm and soft that presses the circular cells into hexagons.

laws. They have nothing to do with the "intent" of the bee, nor has the intent of the bee anything to do with them. Secondly, they are not perfect. Careful measurement of the various cells has shown that there is variation. due to difference in the size of adjoining cells. At one time it was thought that there could be no better standard of measurement than these hexagons. Naturalists have studied and argued as to how the bees have learned to make them. Even so careful a naturalist as Darwin in his interesting chapter. "Cell-making Instinct of the Hive-Bee," tries to prove his theory of special selection by teaching that the bee has learned through the influence of her environment. He admits that the bee makes a rough, circumferential wall or rim all around the comb, and then he tries to explain how the bee has learned to make the hexagons. The honeybee deserves not one particle of credit for making a beautiful hexagon. All she does is to make a cylinder of wax, and a mighty crude one at that. Bees

here no symmetry nor beauty, but only the crudest kind of work. The bee heaps up these pellets one after another, and the action of a physical law, and that action only, does the rest. She is as little responsible for the hexagonal form as she is for the movements of a planet. Both are under control of physical laws totally separate and distinct from any animal organism. a lifetime, I may have watched that planet on every clear night when it is visible above the horizon, and I may repeatedly have observed that it moves, but I shall never learn how to make it move, nor shall I ever take to myself any credit for its movement. Through unthinkable ages honeybees have been making crude cylinders of wax, but they never yet have been able to make a hexagon nor to learn how to make one. Darwin and a host of minor lights, chiefly the utilitarian beekeepers, to contrary notwithstanding. making this statement I claim no orig-Long ago Cheshire, and inality. Cowan said practically the same thing.

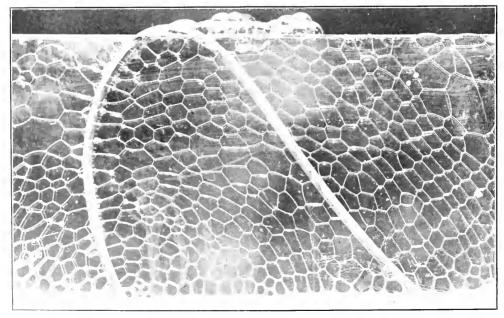


CELLS ON THE EDGE OF ATTACHMENT WHERE THERE IS NO EVEN PRESSURE ON ALL SIDES ARE NEVER HEXAGONS.

but somehow their statements seem to flee from our modern thought of the honeycomb. Cheshire says, "All nature apart from the mystery of life solves everything mathematically. The cricket ball flying from the bat of the tyro, the spray from the maiden's mop. the tiny soap-bubbles of the laundress's lather, as much conform to perfect mathematical solution as the path of a comet or the form of a star.' A child may blow a soap bubble and toss it in the air. No credit can inure to the child for the beautiful spherical form of the mid-air bubble. That form is

simply the result of a natural law. If the child blows several soap bubbles in contact with one another, they become beautifully hexagonal, but here again no credit is due the child. The hexagons are physically not biologically produced.

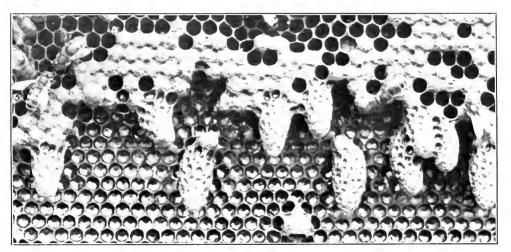
The edge of the honeycomb built wholly by bees is never hexagonal nor angular. The side is a curve and the cells immediately on that curve are spherical at their bottom and circular at their rim. All solitary bees work in circles. I have felt about this like Lowell when he argues in regard to the straight



SOMP BUBBLES BLOWN BETWEEN TWO PIECES OF GLASS HAVE ANGLES AND FLATTENED SIDES.

canals on Mars. He maintains that nature does nothing in straight lines. You never saw an absolutely straight tree, a straight mountain ridge, a straight brook in a meadow. You never have known a woodchuck to dig a square hole nor any other kind with angles, neither does the woodpecker make an angular hole. If we enter the realm of the honeybee and of other members of the Hymenoptera, we shall observe that no mud wasp makes angles on the sides of its cells. The carpenter bee does not bore an angular opening. All excavations and all nests of all forms of animal life are normally free from angular outlines. He that gives the matter consideration will naturally feel that the hexagons of the

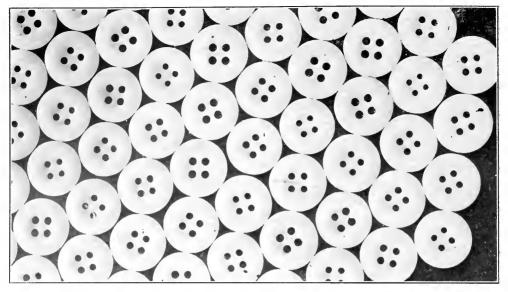
"The Melipona itself is intermediate in structure between the hive and the humblebee, but more nearly related to the latter; it forms a nearly regular waxen comb of cylindrical cells in which the young are hatched, and, in addition, some large cells of wax for holding honey. These latter cells are nearly spherical and of nearly equal sizes, and are aggregated into an irregular mass. But the important point to notice is that these cells are always made at that degree of nearness to each other that they would have in tersected or broken into each other if the spheres had been completed; but this is never permitted, the bees building perfectly flat walls of wax between the spheres which thus tend to intersect."



QUEEN CELLS, PEANUT-SHAPED, WITH NO SURROUNDING PRESSURE ARE ALWAYS CIRCULAR.

honeybee's comb are associated with something beyond and outside of biological law. This circular habit continues even with some of the social Hvmenoptera. It is known to every boy that has dug out a bumblebees' nest, that the honey is in tubes of wax, or in separate and irregularly rounded cells of wax. Darwin was puzzled by this fact, because at one end of the series he had the cells of the hive bee in a double layer, each one hexagonal prism, and at the other the bumblebees that utilize their old cocoons which are circular, or make a wax tube. He reasoned regarding the intermediate form of the Melipona domestica, which was carefully described and figured by Pierre Huber, and decided:-

Therein is the secret. The honevbee has not learned to make hexagons, but she crowds so much into a little space, putting her tubes so close together that they intersect. The sides are flattened, and the cells become hexagonal. Only three forms can be put without interstices—the together square, the triangle, and the hexagon. The hexagon most nearly approaches the circle and would be well adapted to curved or circular larvae. If the honevbee had plenty of room, she would make all her cells circular. This is proved by the circumstantial evidence, that when she has a sufficiently important larva to care for, she takes plenty of room and makes a circular cell for the queen. The cells at



BUTTONS, PENNIES, LEAD PENCILS—ANYTHING CIRCULAR—WHEN MASSED HAVE EACH ONE SURROUNDED BY SIX.

the edge of the comb, where there is no pressure on the sides, are in outline always circular, never hexagonal.

As pointed out years ago by Cowan, an English investigator, these "cells behave mutually like soap bubbles, which when isolated are round; but if they touch each other, the united films form a perfectly flat wall. If there are many, those in the centre will be hexagonal, while those on the outside will have their free sides curved." This is exactly the situation though, as Cowan states, it is denied by some.

After the bees have manipulated the wax they press it down in a crowded, irregular mass, which, under a microscope, looks about like a mass of mortar slumped off from the hod of the carrier. Then the bees scoop out the wax into little holes, and that scooping manifests itself as vestigial, circumstantial evidence in the pittings all over the queenbee cell which give it its peanut-shell roughness. Regarding this Cowan says:

"As the wax is scooped out it is put on the side walls, which are thereby thickened, and give the mouth of the cell a circular form, in all stages of its progress. Many cells are found into which a bee cannot enter, but as the wax is always added to the top edge she has only to work down inside a very little way, and we presume she does much in the same way that a bricklayer would do when building a chimney from the outside, into which he could not introduce his whole body."

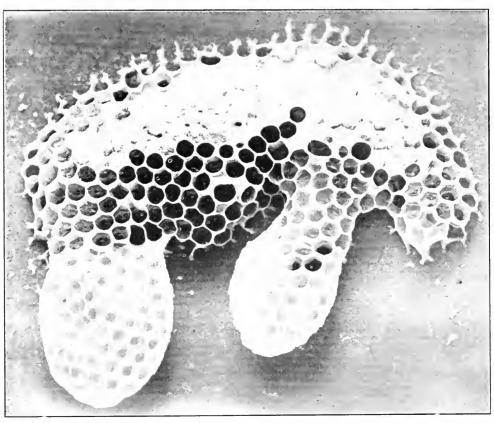
Darwin made extended experiments regarding this, and found that the bees always scoop out the wax from spherical cavities.

"I separated two combs, and put between them a long, thick, rectangular strip of wax: the bees instantly began to excavate minute circular pits in it; and as they deepened these little pits. they made them wider and wider until they were converted into shallow basins, appearing to the eye perfectly true or parts of a sphere, and of about the diameter of a cell. It was most interesting to observe that, wherever several bees had begun to excavate these basins near together, they had begun their work at such a distance from each other, that by the time the basins had acquired the above-stated width (i.e. about the width of an ordinary cell), and were in depth about one-sixth of the diameter of the sphere of which they formed a part, the rims of the basins intersected or broke into each other. As soon as this occurred. the bees ceased to excavate, and began to build up flat walls of wax on the lines of intersection between the basins, so that each hexagonal prism was built upon the scalloped edge of a smooth basin, instead of on the straight edges of a three-sided pyramid

as in the case of ordinary cells."

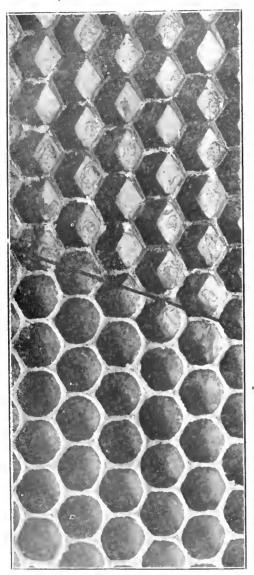
But the bee is a scraper as is the mason when he builds a chimney or makes a cement and stone wall. Have you never noticed how he slaps on roughly a trowel full of mortar and spends most of his time in scraping the sides? So it is with the honeybee. She keeps piling up the end of a cylinder and then constantly goes into her cylinder and scrapes the sides to make them thin. It is this going in that does the hexagonal work and is the exact equivalent of what I did when I pressed a solid on the soap bubbles. She does more than scrape. Her body is covered with hair, even feathers one might almost call them when they are viewed under a microscope. She is like a gun swab and when she pushes into that cell she pushes out the sides. If there is only one cell as in the case of the queen bee cell the pushing out of the sides makes a cylinder, but there are other bees making other cells and they are close to this and it is this pressure

on the sides, with not the slightest intent nor skill on the bee's part, but purely the effect of a mathematical law, that makes the hexagon. Cheshire told us years ago, "The geometrical relation, which embellish the wax tracery of the bee are the necessary result of her mode of proceeding. And mathematics is no more her endowment than it is that of the soap and water we have been considering. These wonders come because the whole creation is founded and sustained by the great Geometer, whose laws weight and measure neither falter nor vary, so that, for the advantage of man, the experience and observation of the past make him the prophet of the And Cheshire proceeds to future." make it perfectly plain that a single cell made by a honeybee is always circular. The queen cell is an example of this. "It is circular—the typical form —in cross section, because it is built alone, and is made to grow with the growth of the grub it contains."



HONEYCOMB CELLS ON A SHEET.THE BACKGROUND) OF PURE BEESWAX ARE ALWAYS CIRCULAR IN THEIR ATTACHMENT. THE SAME IS TRUE OF CELLS ON GLASS.

If a number of wax cups, such as are supplied by the manufacturers for queen cell starters, are placed compactly together and then warmed until the wax is plastic, and into each one of these is thrust a small circular brush, so as to push out the interior, the cups



ABOVE THE THREAD, ARTHFICIAL HEXAGONS SLIGHTLY SMEARED WITH WAX. AS THE SMEARING CONTINUES THEY BECOME CIRCLES, BELOW THE THREAD.

will, by the pressure of the brush, become hexagonal in outline.

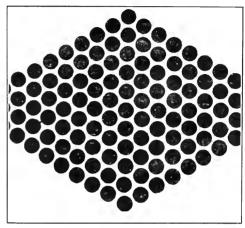
Note carefully that whenever comb is turned out on the artificial foundation that the bee commences at the very start to build circular piles of wax upon the hexagons. The cells of honeycomb are always circular in outline on the edges of the comb where there are no others to press against them. We give the honeybee hexagons as a foundation, but when she makes comb she never makes hexagons. There are no hexagons made at the base of growing comb nor at the top of the cells. There never has been and there never will be, for the reason that the honeybee always works in roughly circular lines.

The optical illusion hexagons on the surface of any growing honeycomb disappear the moment they are examined with eyes wide open. collection of circular dots, or look at the ends of a pile of lead pencils with the eyes partly closed and looking through the evelashes, and immediately they all become hexagonal. It is the old argument about the markings of the diatom called Pleurosigma angulatum. Note the accompanying expanse of circular black dots. Does any one doubt for a moment that these are circular? Look at them through your eyelashes with the eves half closed and see what beautiful hexagons you will have. The appearance is really all owing to IMPER-FECT EYES. It is an optical illusion. All growing honeycomb held at a distance or reduced by photography will show the thing dimly. Examine the comb with clear strong light and under a pocket lens of an inch focus, and every one of those hexagons will vanish and the comb will become a plane of circles.

I have entered extensively into this monographic exposition, because of the many attacks that have been made upon my claims by some of the most practical authorities in the United States. Articles on this subject, in which I have asserted these facts, have been refused by two important bee journals— "Gleanings in Bee Culture," Medina, Ohio, and "The American Bee Journal," Hamilton, Illinois, and I have been not a little ridiculed because I believe and say that the bee does not build hexagons. Some things are the outcome of definite physical laws and have nothing to do with intent nor with learning.

Perhaps this opposition is based on the fact that it exposes the error of making artificial comb foundation in hexagons. Theoretically this is wrong, vet I believe that the error makes no practical difference. The manufacturers of artificial comb may have reasoned in this way: "If we examine the middle division of a honeycomb, we find that it is formed of the sides of We will therefore mould our sheets of wax with cubical indentations." But this comb foundation is for the beginning, not the end nor the middle. The bee starts with parts of spheres and circles, and physical law only, not the bees, finishes with cubical indentations. The bees ask for circles. and you give them cubical depressions. It is a plain example of getting the cart theoretically before the horse. In the production of comb foundation, circles and spheres should come first in what we supply to the honeybee in starter sheets of wax. I assert, without hesitation, that all comb foundations that offer such cubical indentations are logically and theoretically wrong. I doubt whether any so-called practical beekeeper will support this statement, but I am confident that the manufacturers will oppose it. Opposition cannot change the facts in the case. I cheerfully admit that practically the foundation as

supplied by the manufacturers may be even better than flat sheets of circular surface ridges. I am not discussing the practical point, but the theoretical, the purely scientific point. A thing theoretically right may be practically wrong. Any bee-keeper may witness an exemplification of this claim if he



CURCLES VIEWED THROUGH THE EYELASHES WITH THE EYES PARTLY CLOSED BECOME HEXAGONAL.

Horeycomb, even after the bees have pressed the cells, is sometimes not really so hexagonal as optical illusion makes it seem.

-Hopkins's "Experimental Science."
Munn & Company.



ARCADIA APIARY WHERE I HAVE STUDIED IN RECENT YEARS.

will place some of this artificial comb foundation within the hive and note that the honeybees will invariably, in their very first work, change hexagons and cubical indentations into simple circular rings. I have examined hundreds of specimens of natural honeycomb made wholly by the bees, and as many others of the beginning of artificial comb foundation, from the moment when the first masticated particle of wax was placed on the ridge, but without a single exception I have found that the bees worked circularly or spherically. such cases like comb built between the top of the frame where there is room for only one or two rows of cells, or on the edge of the honeycomb next to the attachment to the wood, the cells invariably are circular in outline.



A CHURCH BUILT OF WAX AND HONEYCOMB.

Figs. 1 to 6 are lent to us by the United States Government. The other illustrations, with the exception of the one on page 271 credited to Munn & Company, are by the author.

A Wax and Honey Church.

Mr. George F. Bowersox of Portland, Indiana, is an artist in church architecture as well as with honeybees. On a base sixteen by twenty inches he has made for exhibition purposes a church that is not only symmetrical in design but sweet and attractive. The building is made of honey and of sheets of wax.

We are indebted to the "American Bee Journal" of Hamilton, Illinois, for the use of the accompanying illustration. The editor writes that Mr. Bowersox would like to dispose of this

> church. Here is an opportunity for some one to obtain an attractive novelty. It might be difficult to pack the building so that it could be transported in good shape, but somebody in that immediate vicinity should hail this as a rare opportunity to secure a novel advertising design.

## The Search for Truth.

Besides, I myself have now for a long time ceased to look for anything more beautiful in this world, or more interesting, than the truth; or at least than the effort one is able to make towards the truth.

The fact that the hive contains so much that is wonderful does not warrant our seeking to add to its wonders. — Maurice Maeterlinck in "The Life of The Bee."

According to his nature, man loves truth with a pure and disinterested love, the strongest intellectual affection. The healthy eye does not more naturally turn to the light than the honest mind turns toward the truth.— Hume: Essays. II.



By Don C. Seitz, Cos Gob, Connecticut.

I do not like the Summer's sun
Or Autumn's silver sigh;
Give me instead the Winter's cold
And northwinds blowing high.

Knee deep I wade across the fields
And through the pine groves green
While sparkles in the crystal air
The landscape's silver sheen.

Tingles the blood from crown to toe
No tropic languor here—
But light and life and ecstacy
In zero's atmosphere!

When curling drifts close up the roads
No bitter exile this,
But days of joy and deep content
And nights of sweetest bliss.

For in the broad and open arch
The back log brightly glows—
With hickory crackling on the hearth
I laugh at storms and snows!



I believe more than ever at this time we should endeavor to keep the love and beauty of Nature before the public and to turn their thoughts to something besides war.—Harry G. Higbee, 13 Austin Street, Hyde Park, Massachusetts.

### WHAT WE STAND FOR.

This department desires especially articles of general interest pertaining to bird study. To promote a love for the birds and a sincere desire to study them in the woods and fields is our object, rather than to give strictly scientific data which would be of interest to a comparatively few.

We intend to print no records which are not known to be accurate, and we welcome any observations of an ornithological nature, either from young or old, which would tend to stimulate first-hand study. Good illustrations add greatly to the interest of an article, and these need not necessarily be large if the photographs are sharp and clear.

This is a popular magazine, with a wide-spread circulation, and a diversified group of interests as regards the big subject of Nature Study. We believe Ornithology to be an important part of this general study, and we wish to make this department so full of interest and so completely in harmony with other subjects treated in our magazine, that it may add materially to its general usefulness and to its circulation.

We believe that all of our readers should be "bird-lovers," even though

they are not strictly "ornithologists," just as we believe that all should be lovers of the stars and of the flowers, though they may not aspire to be learned astronomers or scientific botanists.

We would by no means discourage the most painstaking and detailed study in any form of science, for only thus are new facts being constantly added to our store of knowledge, but where one person may seek to know the structural parts of a bird and its minute classification, one hundred may be found who would gladly become acquainted with its name, its general habits and its song, so that they may know it as a friend, and may know its general relation with other creatures which they encounter and enjoy in the day's walk.

Let us aspire to bring the greatest portion of pleasure to the greatest number of people.

HARRY G. HIGBEE.

# Albino Coot from Wallingford, Iowa.

A pure white coot, or "mud-hen," shot some time ago in the marshes near High Lake, Wallingford, Iowa, has been reported by B. O. Holden of that place.

### The February Birds.

In New England we do not look for much spring weather during the month of February. There may be, however, considerable movement in bird life during this month, this depending more or less, of course, on weather conditions as regards the appearance of early migrants from the south. Then also we have learned that food supply has in many instances more to do with the distribution of birds than has temperature or other weather conditions.

Robins, song sparrows, flickers, purple finches and meadow-larks are found to be more or less resident in certain localities where they were formerly supposed to be strictly migratory. In middle and southern New England it is not unusual to find large flocks of robins wintering in the thick cedar swamps. These are likely to appear about our houses earlier than migrating individuals of the same species. Crows appear in greater numbers during February than we have observed them through the early winter months. Purple finches may be noted; song sparrows which have wintered with us but have kept in seclusion, may be heard singing during the latter part of the month, especially if we are favored with a mild "spell," and blue javs seem to become more restless and noisy at this season. There seems to be "something in the air," even though the ground is still frozen and the general atmosphere of winter pervades.

Although rather exceptional the past few years, in event of an early spring the more hardy and daring of our first spring migrants sometimes arrive during the latter part of February. Bluebirds have been known to appear in the vicinity of Boston on the twentysecond, though this is unusual. Rusty blackbirds, bronzed grackles, song sparrows, swamp sparrows, flickers, phoebes and sometimes red-winged blackbirds may arrive in small numbers, these probably being individuals that have wintered not far south of the localities where they now appear. Often these earliest migrants are not noted on their first appearance, as it is supposedly too early to look for them. It is the constant observer, however, -who braves all weathers and who keeps up his daily walks,—who is apt to be rewarded with the sight of these

"first spring birds" which so gladden the heart of the nature-lover.

During February we may also look for such northern visitors as "snowy" and "great-horned" owls, pine grosbeaks, cross-bills, pine siskins, redpolls and evening grosbeaks, in addition to our regular winter residents like the nuthatches, golden-crowned kinglets, tree sparrows, slate-colored juncos, horned larks and snow buntings, although these former species are erratic and uncertain in their movements and visitations to any given locality. With them it is usually a guestion of food supply: they seem to have preferences for a somewhat limited 'menu," and frequently are abundant for a short time in a locality where their favorite food may be found.

There appears to be, in many localities, an entire absence of seeds on the white (gray) birches this winter, which probably accounts for the absence of red-polls and pine siskins noted in these localities, as these birds depend largely upon the birch seeds for subsistence at this season. Cedar waxwings are also wanderers, and may remain in considerable numbers about certain grounds while they are able to obtain a supply of berries of the mountain ash or cedar. As long as the food supply holds out these various birds seem to care little what the weather may be.

February is also the month, in New England and the middle west, when the great horned owl is nesting. Its two eggs are laid and incubation begun often by the middle of the month,—cold and bleak as it may be,—and it is not unusual for the young of these hardy birds to be hatched and brooded during severe winter weather.

The wanderer afield in the month of February should be rewarded with a larger and more interesting list of birds than at any other part of the winter season.

The plan for the new Illinois wild life sanctuaries is to have tracts of a thousand to five thousand acres each, in which about five acres will be sown to various sorts of grain left standing for bird food. Besides this there will be brush heap shelters containing gravel and sand.

# The Thirty-fifth Congress of the A. O. U.

The thirty-fifth convention of the American Ornithologists' Union was held at the Agassiz Museum, Cambridge, Mass., on November 12-14, 1917. It was well attended, with representatives from many states, and a number of interesting and valuable papers were presented. Among these, a paper by Frank M. Chapman, Curator of the American Museum at New York, entitled "An Ornithological Journey From the Tableland to the Tropics of Peru," and one by Robert Cushman Murphy of Brooklyn, N. Y., on "The Explorations of Rollo H. Beck in South America and the West Indies for the Brewster-Sanford Collections," seemed of peculiar interest,—both of these papers being illustrated by lantern slides.

A resume of the principal ornithological work of 1917 was given by Dr. T. S. Palmer, of the Biological Survey at Washington, followed by a discussion by the members.

Some remarkable motion pictures of the home life of a lion were shown, these being taken by the Hon. George D. Pratt

A very interesting series of "Responsive Notes of some African Bush Shrikes" was given by Dr. Glover M. Allen of The Boston Society of Natural History. This peculiarity of a short song or series of notes, given by two different birds as a responsive call, seems quite remarkable,—in each instance the harmony of the notes and time of their utterance being such as to indicate the performance being

given by a single bird.
"The Future of Fede

"The Future of Federal Bird Reservations" was presented by Dr. George W. Field, of Washington, D. C. Dr. Charles W. Townsend of Boston gave his very interesting paper "In Audubon's Labrador," illustrating the route taken through this northern territory by the great naturalist in the early part of the nineteenth century, and comparing the birds found by Audubon at that time with the species of the present day throughout the same range. Many other interesting and valuable papers were given at these meetings, which were open to the public and were well patronized.

Five Associates were raised to the

rank of Members,—these being Messrs Rollo H. Beck, Winthrop S. Brooks, James P. Chapin, Francis H. Harper, and Dr. Winsor M. Tyler, all well-known ornithologists who have done commendable work in their various spheres. One hundred and twelve new Associates were also elected to membership in the Union. Mr. Arthur Humble Evans of Cambridge, England, and Mr. William Lutler Sclater of London, were elected Honorary Fellows, and Mr. F. E. Beddard of London, a Corresponding Fellow.

# To Train Seagulls as "Spotters" of Submarines.

If the scheme of Dr. A. D. Pentz, Jr., of New Brighton, L. I., works out the Prussians will have an immense number of new enemies added to their already long list of foes. Doctor Pentz wants to mobilize the seagulls against the U-boats and teach the "feathered airplanes" to act as scouts for the allies.

Chimerical as that may sound, it is receiving the serious attention of the navy department and has been endorsed by distinguished scientists and men of note. The National Association of Audubon Societies has taken a decided interest in the matter, and it is through that association that Doctor Pentz has made the scheme public.

"The U-boat menace is so serious," says T. Gilbert Pearson, secretary of the association, "that every means should be employed to counteract it. Naval officers who have discussed this matter with me believe there is merit

in the scheme proposed.

"I consider the submersible craft as a gigantic fish, the presence of which can be detected at a considerable depth by the sharp eyes of the sea gulls, for these creatures are nature's airplanes. In the U-boat zone the British officers have from time to time learned of the presence of the German undersea fighters through the action of the gulls, as flocks of the birds are frequently attracted by the shining perisones.

"The appliance we consider using is a hopper, 54 inches long, made of sheet steel, and securely bolted to the top of the submarine. In this receptacle chopped fish is placed. This bait rises to the top of the liquid in the container, and from time to time may be released by the turning of a crank by an operator inside the submarine.

"The gulls would soon learn to associate food with the submerged submarines, just as they do with surface craft, which they accompany for miles in quest of refuse. Once they have seen food emerge from one undersea boat, they will pursue others of the same type, so that in time these white winged aviators would be marking the course of concealed U-boats.

"On clear days the flight of gulls may be observed for five miles. Gulls are known to travel for hundreds of miles, and are frequently seen in midocean. Owing to the protective measures of the National Association of Auduborn Societies, they have greatly increased in numbers on these coasts, and it is estimated that there are half a million of them about the waters of New York harbor alone."

# Migrating Warblers.

Elkader, Iowa.

To the Editor:

I was very much interested in your article on warblers in the September number. Warblers are usually rare in this vicinity, but in the spring of 1917 I saw more than ever before, some of which were very rare indeed in this part of the country. A great many that I had not previously observed were quite common here for a few days.

The spring was unusually late, and in May when the elms are ordinarily in full leaf this year found them with leaf-buds and seeds. The warblers came gradually: the first—a chestnut-sided—we saw on May ninth; on the thirteenth came the "black and white," the Audubon's and the "myrtle";—the latter I had never seen before. The American redstart appeared on the 18th; Wilson's and Blackburnian on the 19th,—and then one morning we awoke to the fact that the warblers were here indeed.

I first discovered a chestnut-sided beauty in one of our elms, and all that day and throughout the next, which was Sunday, the trees in our yard seemed "thick with warblers." A "Canadian," which is very rare indeed, was so tame that I walked almost up to him before he flew away: then there were black-polls and numerous others that I could not identify. The Wilson's, blackburnian and "chestnut-sided" blackburnian were the most common. Vireos were also numerous. I do not know when I enjoyed myself so much. I was out at all hours of the day watching them through my bird-glasses. the warblers are the prettiest of all our birds, and it seems a shame that they are not better known. On the following Monday all was quiet again,-our little travellers having left us,—and the days seemed dull indeed without them.

Perhaps you can tell me the name of a certain warbler that I saw, as I have exhausted my bird books and failed to find the likeness. It was unusually slender. I first discovered it on the topmost branches of a big elm. I kept my glasses fixed upon him and soon he began to descend until he was in a position where I could get an excellent view. He was very tame and I came closer very gradually and he did not move. On the back and top of the head he was a dull green, and his under parts and throat were unbroken bright vellow. There were no markings on his head or body in black, I had a very near view both with and without my glasses. I hope you can tell me what it was, as I am very curious to know.

I am very much interested in the birds, and saved sun-flower, cautaloupe and pumpkin seeds for my winter "boarders." They certainly appreciate my feeding-shelf.

KATHLEEN M. HEMPEL.

From the description which you give of the unindentified warbler, it would appear to be a young female of the Wilson's warbler. These birds lack the black cap which at once identifies the adult. The young of the hooded warbler, which might also be found in your locality during the spring migrations, very closely resembles the above, but averages about half an inch longer, and should show white on the outer tail feathers.—H. G. H.

February, in the northern and middle portions of the Union, is still uninterrupted winter—often the worst of it—Ernest Ingersoll.



# The Heavens in February.

By Professor Eric Doolittle of the University of Pennsylvania.

With the coming of midwinter, our southern heavens shine out with their most brilliant aspect of the entire year. All of the most beautiful constellations are now near the meridian, Orion, Taurus and Auriga having just passed it at nine o'clock in the evening, while the two Dog Stars and Gemini attain it an interested in astronomy will find even

tire band of the southern heavens, from the east to the west, is wholly covered with the brilliant winter stars.

### The February Stars.

Beautiful as these striking constellations are, it is hoped that the reader

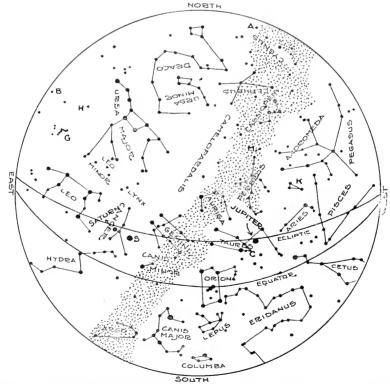


Figure 1. The Constellations at 9 P. M., February 1, east, hold East below. If facing west, hold West below. (If facing south, hold map upright. If facing If facing north, hold the map inverted.)

hour later. Leo, the very last of the bright winter groups, has risen high above the ground in the east, and as the faint Virgo, which follows it, is as vet just below the eastern horizon, the enmore pleasure in becoming familiar with the many fainter and more delicate little groups. For example, on these winter evenings he may trace out the Triangle, at K, and the little groups

of the Hare and the Dove, which lie just below Orion. He may also recognize the very upper stars of the large southern constellation Argo Navis, a wonderful collection of suns among which is the giant sun Canopus, a star which appears to us but little fainter than Sirius, although it is at least twelve times as far away. It is indeed the second brightest star in the sky (Sirius being the first) but unfortunately it, as well as nearly the whole of Argo, is hidden from us, never rising above our southern horizon.

Above Argo and below Sirius is the Unicorn, while bordering the Milky Way in the zenith we find the Giraffe. The Lynx and the lesser Lion, the latter lying between Ursa Major and the Greater Lion, and the former between the Bear and the Cancer, are more easily traced out, while below the Great Dipper (at H and G, Fig. 1) are the Hunting Dogs and the Maiden's Hair, the last the most beautiful little group of all, especially when viewed on a clear, moonless night with a pair of opera glasses.

The reader will find an inexpensive star atlas of the greatest assistance to

jects which have come down to us from a remote antiquity and about whose origin (when it can be ascertained) there is often so much of interest. There is a large field of work even for naked eye study, enough to occupy the beginner for many evenings and indeed for many whole nights. But the smallest telescope will enormously widen the field of work. With such an instrument he will be surprised to find how much is revealed to him when he turns to star groups such as the Pleiades (at L) or the Hyades (at C), while the true character of such objects as the beautiful cluster in Perseus (at M) and Praesepe (at D), which are only just visible to the naked eye, can only be revealed by the use of a small telescope. A great number of interesting objects will be found on the charts of the atlas; study and exploration of the heavens in this way may be found an almost inexhaustible source of interest. \* \* \* \*

# The Planets in February.

Mercury is in the morning sky throughout the month, but too near the sun's rays to be well observed. Though it will pass to the east of the sun on

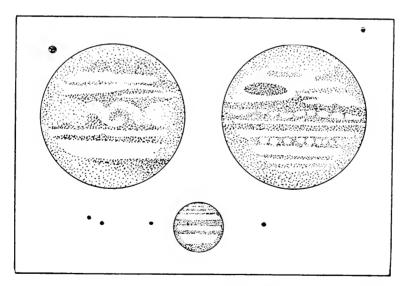


Figure 2. Views of the planet Jupiter. The second shows the appearance of the Great Red Spot in 1878.

him in becoming familiar with these fainter groups. The interest of his study will be much increased if he selects an atlas on which are drawn those figures of the animals and other ob-

March 12, it will not attain its greatest distance away in the evening sky until the first week in April.

The very brilliant Venus, which for so many months has been so very con-

spicuous in the southwestern heavens after sunset, will pass to the west of the sun and so become a morning star on February 7. Toward the end of the month it may be seen before sunrise, creeping outward from the sun's rays, but it will not attain its greatest brilliance in the morning heavens until March 16.

Mars is just beyond the eastern borders of our evening map, in the western portion of the constellation Virgo. On February 1 the planet is two degrees due north of the bluish, variable star Eta, or Virgo, while by February 28 it will be thirteen minutes to the west of this star. Mars rises almost exactly at the east point of the horizon at 9 hrs. 20 min. P. M. on February 1, but this time is diminished to 7 hrs. 20 min. by February 28, when the planet will be seen high in the evening heavens.

Jupiter and Saturn are both in excel lent position for observation. The former planet is in Taurus and the latter is in Cancer, in the positions indicated in Fig. 1. The retrograde motion of Jupiter has now ceased and during the month it will move eastward an amount about equal to twice the apparent diameter of the full moon. Saturn, however, is retrograding and will continue to do so until April 9.

Uranus enters the morning sky on February 12. Neptune is in Cancer, 21 minutes to the west and 29 minutes north of Saturn on February 1: these figures diminish, however, to 18 minutes and 1 minute, respectively, by February 28. If on the latter date the observer will point his telescope on Saturn, and leave it undisturbed for 17 minutes 52 seconds, he will then see the more distant planet exactly in the center of the field of view.

# \* \* \* \* \* Spherical Star Clusters.

Quite recently astronomical interest has largely centered in those remarkable aggregations of faint suns, found in many parts of the sky, which are known as spherical clusters. In the telescope these beautiful objects appear as almost perfectly spherical balls of innumerable points of light, toward the center of which, however, the crowding is so great that the separate stars are no longer distinguishable.

In astronomies written fifty or more years ago, the reader will find the speculation whether these clusters may not be universes of stars, not so very unlike our own universe, but almost inconceivably remote from us. From more modern books he will learn that it is far more reasonable to regard them as dense clouds immersed in and a part of our Milky Way universe.

Several different lines of investigation are now leading us to believe that the older conception was in the main the truer one. It is evident that these clusters are of a very different structure from that of our flattened, very heterogeneous and extended Milky Way cluster, yet a study of four of the spherical clusters leads to figures so great as from 15,000 to 50,000 light years for their distance away from us. Thus they are on the outer boundaries or even far beyond the limits of our visible universe.

Of four clusters studied the nearest was found to be the magnificent clus-

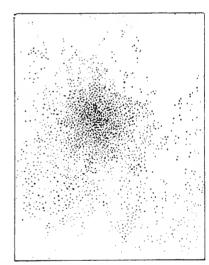


Figure 3. The great spherical cluster of stars in the constellation Centaurus.

ter in the southern constellation Centaurus. This is not surprising, since this cluster appears so much larger than any of the others; its apparent diameter is two-thirds that of the full moon and it is easily visible to the naked eye. We would naturally expect, therefore, that it would prove to be our nearest neighbor among this class of objects.

One very interesting method of estimating the distance of certain of these clusters is made possible by the circumstance, known for many years, that a large number of their stars are variable in brightness. These belong to a definite class of variables known as the Delta Cepheid variables, so called because the star Delta of the constellation Cepheus (shown at A, Fig. 1) is a typical and conspicuous example of the class. These stars increase quite suddenly to maximum brightness, then diminish more slowly and irregularly, and then brighten again, the whole period being so short as a few days or even as a few hours.

Such a kind of variation can only occur in stars of a quite definite physical condition and inherent brightness, especially if the period is about one-half a day, a type very common in clusters. By comparing the apparent brightness of these stars with the apparent brightness at a known distance, the distance of the cluster at once follows.

Thus in the well-known, though rather faint little cluster in the constellation of the Hunting Dogs (at B, Fig. 1) the average brightness of 110 variables was found to be 15.5 magnitude, the average deviation of separate stars from this being 0.08 magnitude, thus indicating clearly how uniform the real brightness of these objects is. Similarly in the cluster in Centaurus the average magnitude was 13.57 (that is, 6.25 times brighter) from which we conclude that the first cluster is 2.5 times as far away as the second.

A recent interesting investigation is upon the probable ages of these spherical clusters; that is, upon the time which would be required for a rather irregular cloud of stars of such vast dimensions to acquire an approximately spherical form. Basing the mathematical investigation upon what seem to be reasonable assumptions in regard to the size and average distance apart of the stars, the required time is found to be no less than two thousand million vears. Truly our conceptions of distance and of duration have been enormously extended during the past few years!

"We love things not because they are beautiful, but they are beautiful because we love them."

### The Things I Love in Nature.

It is strange perhaps to think of, but I never cared for flowers,

With their tints of pink and purple, blue and red;

But the things I love in nature are the height, the depth, the length

Of the mountains and the ocean and the plain,

Oh, I love to see the mountains with their everlasting snow,

And the things too big and fine to understand,

Like the huge and mighty cataracts where waters ever flow.

And the limitless expanse of desert sand.

And the forests and the jungles, and the desert, and the plain,

Where the colors always mix and never clash.

For there's nothing bad in nature, nothing ever small or mean,

Ev'rything is always good and square and strong;

And there's nothing looks untidy, ev'ry place is pure and clean,

And there's no mistakes, and nothing's ever wrong.

Oh, I love to lie at midnight in the clean and open veld,

And to watch the stars above me in the sky; . . .

It is good to be out somewhere all alone in Nature's arms,

When one lays one's blanket down and goes to rest;

And I've often thought of all her gifts, of all of Nature's charms,

That the glory of her silence is the

That the glory of her silence is the best....

-Brian Brooke, in "The Christian Science Monitor."

### Winter.

These Winter nights against my windowpane

Nature with busy pencil draws designs
Of ferns and blossoms and fine spray of
pines,

Oak-leaf and acorn and fantastic vines.
Which she will make when summer comes

Quaint arabesques in argent, flat and cold. Like curious Chinese etchings.

T. P. Aldrick—"Frost-Work."

Every pleasant glance we give to the realities around us, with intent to learn, proceeds from a holy impulse, and is really songs of praise. What difference can it make whether it take the shape of exhortation, or of passionate exclamation, or of scientific statement? These are forms merely. Through them we express, at last, the fact that God has done thus or thus.—Emerson.

# RECREATIONS WITH MICROSCOPE FOR STATE OF THE MICROSCOPE FO



PHOTOMICROGRAPH. STARCH. POTATO, MAGNIFICATION 200 DIAMETERS.

cell wall in the early stage of its development.

Under the microscope the granules show a characteristic form and a structure composed of a series of apparently concentric layers, which in connection with the size and shape are characteristic of the plant to which they belong.

The accompanying photomicrographs illustrate three varieties. These were all made at a magnification of two hundred diameters, and give an idea of the comparative size, form and position of hilum in these three starches.

The canna grains are well known to microscopists as "tous-les-mois," and are the largest in common use.

# Starch Granules under Polarized Light.

BY PHILIP O'GRAVELLE, SOUTH ORANGE, NEW JERSEY.

The microscopic examination of starch granules under polarized light presents some advantages over their examination in the ordinary way.

With crossed Nichol prisms giving a dark field, the outline of the granules may be seen to better advantage and the forms will glow in the beautiful color display afforded under polarized light.

A dark cross is formed with the place of intersection of its arms at the hilum, the point at which the grain was attached to the



PHOTOMICROGRAPH. STARCH. BERMUDA ARROWROOT.
MAGNIFICATION 200 DIAMETERS.



PHOTOMICROGRAPH. STARCH. CANNA. MAGNIFICATION 200 DIAMETERS. "TOUS LE MOIS."

### Natural Paper in a Reservoir.

Through the kindness of Dr. Frank E. Hale, Director of the Mt. Prospect Laboratories of Brooklyn, New York, we have been favored with samples of a paper-like substance taken from a reservoir and composed of microscopic material. Futher data are given by Thomas Wilbur Melia, Bacteriologist, who writes as follows:

"A ten million gallon reservoir at Pottsville, Pennsylvania, was by the State Health Officer ordered to be shut off from the source of supply and to be cleaned as the consumers complained that the water was unfit to drink. After stripping the reservoir, ten tons of this paper-like substance were taken from the side walls of the dam. When this specimen was sent to me for identification I teased it in water, using a needle for separation.

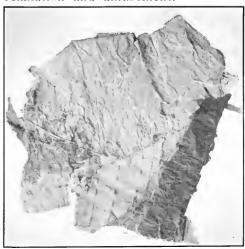
"The substance is composed of almost a pure culture of the fresh-water alga, Conferva bombycina. The plant is common in the ponds but that it should have developed in the reservoir in so enormous a quantity is amazing. These freshwater algae were probably formed into this paper-like substance by the constant water pressure upon the side walls of the reservoir."

Development by Amateurs.

It is largely to amateur microscopy that the desire and motive for the great improvements in object-glasses and eye-pieces for the last twenty vears are due. The men who have compared the qualities of respective lenses, and have had specific ideas as to how these could become possessed of still higher qualities, have been comparatively rarely those who have employed the microscope for professional and educational purposes. They have the rather simply used —employed in the execution of their professional work the best with which the practical optician could supply them. It has been by MAGNIFICATION amateur microscopists that the opticians have been incited to the production of

new and improved objectives. But it is the men who work in our biological and medical schools that ultimately reap the immense advantage—not only of greatly improved, but in the end of greatly cheapened, object-glasses.—"The Microscope and Its Revelations."

There certainly never was a time when the microscope was so generally used as it now is. With many, as already stated, it is simply an instrument employed for elegant and instructive relaxation and amusement.



NATURAL PAPER OF ALGAE.



The Home
The Research Laboratories, and
The Clearing House of Nature Study,

of

# The Agassiz Association and

# The Boy Scouts of America,

aiding and benefiting continuously more than 600,000 people; in affiliations with other organizations and through other channels really more than one million additional.



ARCADIA'S OFFICE ENTRANCE DECORATED BY NATURE WITH HER WINTER'S FLORA-

Most persons see only one or a few phases of our work, and fail to realize its tremendous extent, its systematic efficiency and its rapid growth. Even visitors at ArcAdiA, who exclaim at the extent and detail of the equipment, and enthusiastically inquire, "How do

you take care of it all, and do it all?" cannot realize, as do the workers, to what ponderous dimensions the whole thing has grown in a few years, and how embarrassingly it insists on growing, in spite of only a few workers and meagre finances.

ARCADIA 285

Ten buildings; viz., Welcome Reception Room, Office Home, Laboratory, Birchen Bower, (residence), Astronomical Observatory, Botany Bungalow (residence), Pet House, Apiary, Serving House and Storage Building (cuts and negatives).

Heating: Two hot water furnaces, mineralogical fireplace, four cooking stoves, three heating stoves—ten in all—a problem at any time, much more so in these days of fuel shortage.

Water: The entire premises are well supplied. For three months ending December 1st, 1917, there were used 10,200 cubic feet of water costing \$19.94.

Electric Lights: Interior lighting 131, scientific experimenting and projecting 12, outside lighting 38, total 181. The scientific lighting consists of one arc, three nitrogen filled, one Nernst and seven Mazdas.

The Welcome Reception Room, even in the coldest and stormiest days of December and January, has been in frequent use as a community center by the Sound Beach Home Guards, the Boy Scouts of Greenwich and Stamford, for club meetings of public school children, private schools, visiting parties, etc.

Many questions on nature study are every day answered by telephone.

The mail requires a secretary and two stenographers.

The Observatory is in use on clear nights and even in zero weather has received visitors.

# PERSONAL.

For developing and caring for all this, what is in it for the Bigelows? Two members of the family devote all their time to the work, and two others a greater part of their time. For the first seven months of the present fiscal year the total that all have received was \$81.57 (not per month but for the whole seven months for all four

members). This situation was explained to a few friends. One gave \$200 and the others \$25 or \$50 apiece, a total of \$405; but only a little over one-half of this could be used personally, the rest must go for The Agassiz Association bills in arrears. On December 31, 1917, at the end of nine months of the fiscal year, the total that all four members had received was \$446.03, an average aggregate per month for four workers of only \$49.56.

Love of the work and the joy of accomplishment in a great Cause would incite the Bigelows to continue undiminished efforts regardless of financial income, but we believe the time has arrived when the situation should not be merely reported confidentially to a few friends, but should be made known to all who are interested in the general work, or in ArcAdiA as a community center. It is worth at least a dollar a year to every resident of Greenwich and Stamford to have The Guide to NATURE in his home, and to have ArcAdiA in this community, whether he is interested in nature or not.

But the low price of subscription (even with the advertisements) in the present high cost of things barely covers the expenses of the magazine.

The general work and the expense of ARCADIA are largely supported by membership fees and contributions.

In war or in peace, in strenuous or in easy times, don't forget the words of George Washington:

"Promote, then, as an object of primary importance, institutions for the general diffusion of knowledge."

To the educator, to the philanthropist, interested especially in boys and girls, to the public-spirited citizen of Greenwich or Stamford that recognizes the value of Arcadia as a community center and contemplates Cooperating Membership, or a liberal gift, we will gladly explain every detail. The work needs and merits general cooperation in subscriptions, memberships and contributions.

I am publishing this personal statement that every friend of the Association may know the real situation and that we may gain new friends who will have an introduction to the good Cause through the testimony of our faithful work in behalf of it. But, kind reader,

do not make either of two very possible mistakes.

- 1. Above all things, do not say if it does not pay it is not worth while. It does pay liberally in the value of the work. There are, strange to say, as many people have to learn, many things in this world well worth while though not measured by financial dividends.
- 2. Do not regard this as a begging appeal in behalf of the ArcAdiAn workers. We have gladly done what we have, and we hope to inspire you to go forward enthusiastically in the

### LOCAL SCOUTS'

### NATURE CONVENTION

The First Quarterly Session was held at ArcAdiA, December 29th.

BY NOBLE P. RANDEL, SCOUT EXECUTIVE, STAMFORD, CONNECTICUT.

What promises to be one of the most interesting of the Scout activities of Stamford and vicinity is the work that is being taken by the representatives of the various Troops in connection with nature study. Action to that



IN BOTANY BUNGALOW OUR BOTANIST IS PLANNING TO MEET THE COMING OF THE WILD FLOWERS.

same spirit of devotion. We believe a gift to The Agassiz Association should not be regarded as in any sense a personal pittance. It is a contribution to greater efficiency.

EDWARD F. BIGELOW.

# VALUE OF NATURE STUDY NOW.

In times like these it is fitting that the beautiful shall subsist in order that the spirit of man may continue to possess something of its accustomed joy. In general, the face of the world is exceeding solemn and the heart is very sad, but with that divine ordering of things the bounties of nature continue and its beauties and its glories still subsist among men.—Keene H. Addington, Illinois.

effect was taken at the conference held at ArcAdiA in Sound Beach, Saturday, evening, December 29th. Scouts from Glenbrook, Greenwich, Sound Beach and Stamford will participate, and conferences will be held quarterly, at which time reports will be made by the Scouts on observations which they have made, together with the results of their investigation of subjects chosen by themselves or assigned to them. Those who attended the first conference spent a most enjoyable evening around a large fireplace in the Reception Room, before a rousing fire. No one could imagine that the temperature out of doors was far below zero point, but this was not the only warmth which characterized the occasion, for the warm reception extended to the delegates, together with the hot cocoa

which was served, will long be remembered. The only cold part of the program was that spent in the observatory, but in spite of the severe cold the boys thoroughly appreciated the opportunity to view the heavens through the large telescope. The bodies viewed which were of the greatest interest were the planets, Jupiter and Saturn, with their moons, the inconceivably great Orion nebula and the wonderful double star, Castor, of the constellation Gemini. Nature study is of primary importance in scouting, and if the Scout loses sight of this fact and fails to appreciate the necessity of living close to and in constant harmony with nature, he is losing his bearing and should consult his compass at once. It would be difficult to overestimate the value of the Scout to the army or the body with which he is connected. It is his duty to go out and reconnoiter, to observe, to see things and study conditions and then return and report on his findings. The boy is not a real Scout, neither is he worthy of the name Scout, unless he is capable of actually performing his Scout duties. It is with this in view and the desire to make scouting mean more to the boys, to help them the better to improve the opportunities offered by scouting, and in turn to make their best contributions to scouting and to the good of those with whom they come in daily contact, that these conferences are to be held. The Scouts of this vicinity are to have an opportunity to carry out their nature study program under conditions which are most favorable, and fortunate indeed will be those who participate. The ArcAdiA at Sound Beach with Dr. Edward F. Bigelow, its head, is the headquarters for all the nature study work of the Boy Scouts of America, and with its excellent equipment and the hearty cooperation of Dr. Bigelow, the Scouts are to have an opportunity for nature study which far surpasses that of any other groups in the country. \*

By the Scout Naturalist.

The plan proposed for the Scouts of Sound Beach, other parts of Greenwich and Stamford is one that should be adopted by Scouts in every locality that has a central clearing office. This may be the local Scout office or some

other place conveniently located, and some one should be in charge of the work who has at least a fair knowledge of nature. As has been stated before the duty of the Scout is primarily to see and to hear. That is the meaning of the root word, escoute. In the army a scout is one who goes out to obtain information, to see, to hear and to learn by every possible means. Scouts are sent in every direction. They are assigned to specific duties, to reconnoiter, to investigate, to be alert in every respect. Nature study work should be much on the same plan. In every community things are happening at all times. These should be investigated and reported. For example let us take the conditions as they arise at ARCADIA, the home of the Scout Naturalist, and show what this new plan is expected to accomplish.

Only a few days ago we were asked by telephone, "Is a wild cat good to eat?" When we answered, we asked the speaker why he desired the information. It appears that in Stamford a hunter lives who had been in the woods in the northern part of the state and had shot a wild cat. What should he do with it? No one seemed to know. Comparatively few persons saw the Two Scouts should have been assigned, preferably one of them a photographer, and the other with ability to sketch the teeth, the claws and other parts of the animal. At the next nature convention (and, by the way, these conventions should be held periodically, say once in three months) a full report should have been made, including statements from the books, inquiries as to the habits, dwelling places and other particulars of the wild

At about the same time a deer was reported to have attempted to jump over an iron fence surrounding a fine e-tate and had become impaled on the spear-like pickets. In that case a photographer did take a picture. copy of that photograph should have been secured and other details obtained by definitely assigned Scouts. In the City of Stamford a wild deer ran through the street and into a saloon. The police assisted in capturing the animal which was then taken into the

suburbs and released. Military scouts would have had a method of reporting the occurrence to headquarters, and scouts would have accompanied the police and those that released the wild animal.

In the town of Greenwich a fox with five little foxes was captured. was a rare subject but not more than a dozen people saw that mother and the little foxes. What was done with them the Scout Naturalist does not know. There should have been a system by which such information could promptly obtained and as definite and careful as that of the city editor of a newspaper who makes an assignment to the reporter as soon as even a stray bit of information reaches the office. Observations of Scouts should not be limited to nature. It should be information as definitely obtained as a military scout or a reporter obtains his. This applies to a multitude of things some new and wonderful piece of machinery has been installed; somebody has obtained an unusual object; a woodchopper reports an unusual discovery in the woods; somebody reports that a deer has been devastating somebody's garden, and yet no one seems to know definitely whether the report is correct or not, or to what extent the garden has been injured. The Scout Naturalist urges the Scouts of every community to appoint specially detailed Scouts from all the Troops in the vicinity for this very purpose. should obtain full details and return to headquarters as early as possible, so that the information may be made known for the good of all.

# Perpetual Youth in the Woods.

In the woods, too, a man casts off his years, as the snake his slough, and at what period soever of life, is always a child. In the woods is perpetual youth. Within these plantations of God, a decorum and sancity reign, a perennial festival is dressed, and the guest sees not how he should tire of them in a thousand years. In the woods, we return to reason and faith.— Emerson.

About three hundred thousand acres in Utah is to be set aside for wild life sanctuaries. Each county in the state is to have two tracts, one for birds only, the other for upland birds, game birds and mammals.

Nature's Appeal Nowadays.

In this latitude, in the winter months, nature's particular appeal is to our appreciation of the beautiful; the lonesome tree with its bare branches, the solitary gull against the storm clouds, the blue of the sunlight on the snow, the warmth and purple of the ever changing sunsets, the frozen streams and sparkling ice crystals, the glory and wonder of the stars. Winter possesses two things which the other seasons have not, space and simplicity. super-abundance of confusing forms, and sounds, and color has so diminished that what we see or hear or feel makes fewer but more lasting impressions. Plant life is dormant and only the warm blooded animals, the birds, the squirrels, the rabbits, the weasels, the minks and the foxes are abroad.—Park Museum Bulletin, Providence, R. I.

### The Campfire.

BY EDWARD A. C. MURPHY, WABANAKI, GREEN-WICH, CONNECTICUT.

Ι.

When the golden sun has tumbled o'er the western hills,

And the screech-owl's distant hooting all the valley fills,

When we gather by the great oak That stands guard above the mill,

Then the campfire through the darkness shines,

A beacon on the hill.

II.

When we wrap in blankets sitting crosslegged on the ground,

And our story-teller rises, silence is profound

As he tells his tales of terror Gives us many a welcome thrill,

While the campfire glowing, sparkling shines

A beacon on the hill.

H.

When we've left the magic circle, after many

a hearty song,
And the bugle's warning "tent-call" tells
the day is gone.

the day is gone,
When the call of "taps" has sounded

And the camp is still,

Then the campfire growing dimmer shines A beacon on the hill.

### IV.

When summer's gone and autumn's come to end these happy days.

And the call of home and duty brings the

parting of our ways, Then our thoughts around home fires

Bring us back to camp, until We can see the yellow campfire shine A beacon on the hill. IF YOU ARE A USER OF PAPER WE WISH TO INTEREST YOU IN THE FAMOUS

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RUTHERFORD. S NEW JERSEY



TROPICAL WILD LIFE IN BRITISH GUIANA.
Zoological Contributions from the Tropical Research Station of the New York
Zoological Society. By William Beebe,
Directing Curator; G. Inness Hartley,
Research Associate, and Paul G. Howes,
Research Assistant. Introduction by
Colonel Theodore Roosevelt. 111
Broadway, New York City: The New
York Zoological Society.

The New York Zoological Society has entered upon a new era in establishing a tropical research station in British Guiana. This will give wide scope for obtaining knowledge of living creatures. The station provides for intensive, open field study of the teeming animal life of the tropics, and extends a cordial hospitality to all naturalists. A somewhat significant announcement is that "jealousy is regarded as utterly unworthy." Every original investigator fit to work in the field is sure of a welcome and of all possible aid in his studies. Theodore Roosevelt in the introduction says many good things. We quote the following:

"The time has passed when we can afford to accept as satisfactory a science of animal life whose professors are either mere roaming field collectors or mere closet catalogue writers who examine and record minute differences in 'specimens' precisely as philatelists examine and record minute differences in postage stamps-and with about the same breadth of view and power of insight into the essential. Little is to be gained by that kind of 'intensive' collecting and cataloguing which bears fruit only in innumerable little pamphlets describing with meticulous care unimportant new subspecies, or new 'species' hardly to be distinguished from those already long known. Such pamphlets have almost no real interest except for the infrequent rival specialists who read them with quarrelsome interest.

"Of course a good deal can still be done by the collector who covers a wide field, if in addition to being a collector he is a good field naturalist and a close and intelligent observer; and there must be careful laboratory study of series of specimens of all kinds. But the stage has now been reached when not only life histories, but even taxonomic characters can normally be studied better in the field than in a museum or at least, when, although both types of study are necessary, the field study is the more important; and when intensive study in the field, as carried on at this station, yields more important results than can normally be achieved by the roaming collector.

"In addition, it must always be remembered that the really firstclass naturalist whose observations are to bear most fruit, must possess the gift of vividly truthful portrayal of what he has possessed, the vision clearly to see in its real essentials."

Volume I contains an immense amount of good original work. It is not a compilation but a real book. The naturalists that have participated are thoroughly sincere, well informed, energetic and enthusiastic. They have produced a book that not only adds to natural science but to the pleasure of the general reader. The illustrations are new, the text is interesting and the magnificent workmanship of the book is a delight. We cordially recommend it.

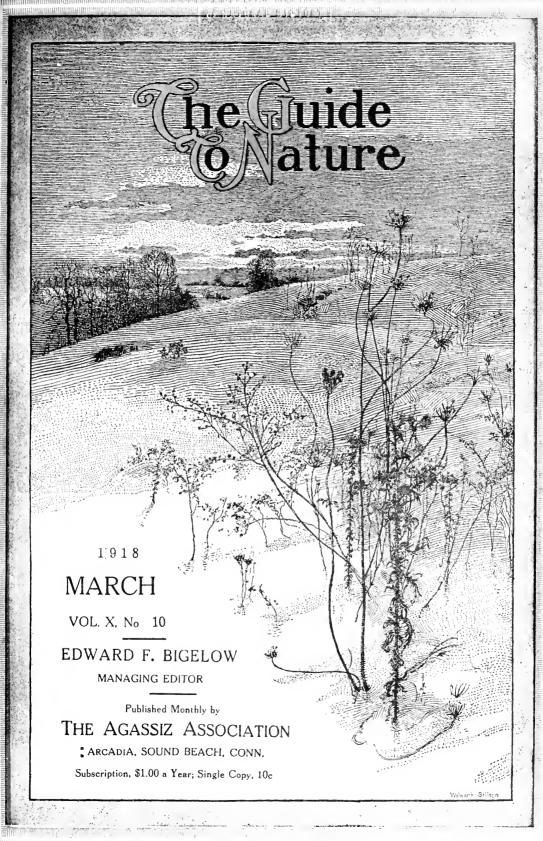
AUDUBON THE NATURALIST. A History of His Life and Time. By Francis Hobart Herrick, Ph. D., Sc. D. New York City. D. Appleton and Company.

This history has been prepared by an eminent ornithologist and admirer of Audubon after years of research. It contains the first authentic record of Audubon's birth and antecedents, with a wealth of hitherto unpublished material regarding the life and romantic career of America's pioneer naturalist. The complete history of Audubon's life is a story of rare interest. Every bird lover will delight in it.

The work is in two volumes sumptuously illustrated with color portraits of Audubon's birds, photogravure portraits, many halftones of scenes in Audubon's life, examples of his work, portraits of contemporaries, etc. There are also numerous reproductions of rare letters and documents. It is printed on special paper, and attractively bound in blue cloth, gilt tops, uncut edges. In a box. \$7.50 net per set.

PRODUCTIVE BEE-KEEPING, By Frank C. Pellett. Philadelphia, Pennsylvania: J. B. Lippincott Company.

Mr. Pellett is an accomplished apiarist and naturalist and, one may add, an earnest sympathizer with human beings. He evidently has had experience with the troubles of bee-keeping and knows how to make the knowledge gained in that way beneficial to others. The book is one of a series of farm manuals and, like most of the others, merits commendation for the manner in which it depicts its subject. The plan is good, the information concise and practical. We heartily congratulate the author and the publishers, and especially the beginner in bee-keeping, upon the fact that so attractive a book is now available.



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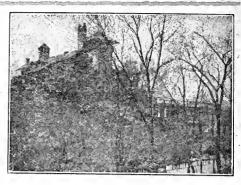
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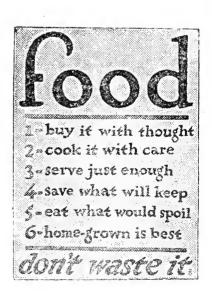
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Every householder is interested in the question of conservation of food. Here is the costume accepted by the Hoover commission and which is to be worn by the women who have signed the pledge. For such use, it should be made of plain blue with white trimming. Here, it is worn by an active housewife and is made of plain it is worn by an active housewife and is made of plaud gingham with trimming of plain color. Since it will be in demand for general wear as well as by the signers in the pledge, that suggestion is a good one. It is a very smart, attractive looking costume. You can wear it as an apron, or you can wear it as a gown. The single button and buttonhole in the belt effect the closing, consequently, it is exceedingly easy to slip on and off. Women who find exceedingly easy to slip on and off. Women who find themselves compelled to do with less help than usual this season will find the apron valuable.



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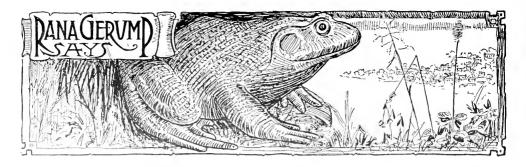
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### The Greenwich Trust Company.

Mr. E. C. Converse has been elected president of The Greenwich Trust Company, succeeding the late R. J. Walsh. The other members of the board of trustees are as follows: John D. Barrett, U. S. Lloyds; Russell A. Cowles, president Metals Trading Corp.; George A. Drew, manager Conyers farm; Nathaniel A. Knapp, highway commisioner; James Maher, treasurer Maher Bros. corporation: S. Elbert Mills, retired; F. A. Springer, treasurer Mianus Manufacturing Company, and James F. Walsh, attorney at law.

The officers are as follows: James F. Walsh, chairman; A. W. W. Marshall, vice-president and secretary; Walter B. Todd, treasurer, and Luther H. Allcorn, trust officer.

# A Wonderful Stump Puller.

It does not look big in the advertisement, but its claims are so big that occasionally some of our readers inquire if the little machine is really so very powerful. The editor of this magazine has seen one of these little machines in operation on the premises of Ernest Thompson Seton. What it did was marvelous. It will not only pull up a huge tree from the earth, but will easily drag the entire tree with a mountainous mass of earth attached to it.

Opportunity is now knocking at the farmer's door. Why? Because the prices of all crops are higher now than they ever will be again in the history of the world, or ever have been and crops will be higher in price next year than they are this year. This statement is made on the authority of the food experts in Washington who know what they are talking about. They know the demand and supply

which, of course, control price. Their advice is, "Put every acre you own into use at once. Get those stumps out, and cultivate that land." Now is the time to get the high price for your crops. Make money now while the war lasts. Don't wait until it is over. Those stumps are occupying land that should be under cultivation. Get busy and pull them out.

Write to Mr. Walter J. Fitzpatrick, Box L, 182 Fifth Street, San Francisco, California. Do not forget to mention The Guide to Nature and he will send you full particulars.

### Needed a Dentist's Pull.

Wild and disheveled, watery of eye, and trembling of limb, he burst into the dentist's consulting-room, and addressed the molar merchant in gasping tones:

"Do you give gas here?"

"Yes, replied the dentist.

"Does it put a man to sleep?"

"Of course."

"Nothing would wake him?"

"Nothing. But-"

"Wait a bit; you could break his jaw or black his eye without him feeling it?"

"My dear sir, of course, I-"

"It lasts about half a minute, doesn't it?"

"Yes."

With a wild whoop of joy and relief the excited man threw off his coat and waistcoat.

"Now," he yelled, as he tugged at his shirt, "get yer gas-engine ready. I want you to pull a porous-plaster off my back."—"Tit-Bits."

Why did the fly fly?—Because the spider spi(e)der.

# THESE ARE THE DAYS OF FULL STOCKS AND TEMPTING SPRING STYLES.

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### Mistaken Classification!

Two brothers were being entertained by a rich friend. As ill luck would have it, the talk drifted away from ordinary topics.

"Do you like Omar Khayyam?" thoughtlessly asked the host, trying to make conversation. The elder brother plunged heroically into the breach.

"Pretty well," he said, "but I prefer Chianti."

Nothing more was said on this sub-

ject until the brothers were on their way home.

"Bill," said the younger brother, breaking a painful silence, "why can't you leave things that you don't understand to me? Omar Khayyam ain't a wine, you chump; it's a cheese."—New York Globe.

Hail to you, winds of March!
And welcome, April's showers!
For you blaze the way to the heart
Of the summer's fragrant bowers.
—Emma Peirce.

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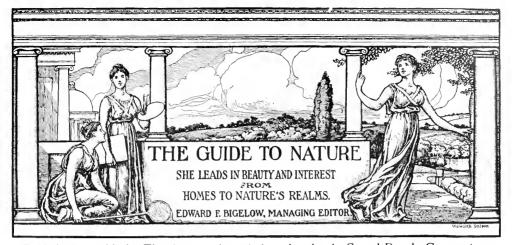
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Volume X

MARCH. 1918 Number 10

Rare Animals in This Vicinity.

BY PROFESSOR JOHN J. SCHOONHOVEN, BROOKLYN, NEW YORK.

In nearby Westchester County with its valley lands and rugged picturesque hills claimed for agriculture and grazing purposes there still remains a large part of the country covered by forests and undergrowth affording a most excellent sanctuary for wild life. It is not surprising therefore that the list of mammals is large including bats, foxes, skunks, weasels, minks, raccoons, rabbits, woodchucks, squirrels, muskrats, many other species of rodents, and occasionally a deer. These forms seem perfectly normal and natural in this environment.

Occasionally, however, some form of wild animal life appears for which it is hard to account. During the last week. for instance, a coyote shot by a Westchester farmer was brought to the New York Zoological Park for identification, and the hunter was genuinely astonished at his own prowess when Dr. Raymond Ditmars assured him that it was a real covote.

In Pound Ridge, just over the Connecticut boundary line, a year or two ago a basket maker went down to the pond in which he had some logs soaking and saw what he supposed to be an inoffensive muskrat. He was surprised at the stiff fight the "muskrat"

put up when he somewhat casually undertook his capture and his surprise was further increased when his "muskrat" turned out to be a fine specimen of otter. As a result his wife is now the proud possessor of a beautiful otter muff quite the envy of her neighbors.

Last summer at Sarles Corners near the farm of Leland Waterbury a curious small mammal was picked up dead beside the road killed evidently by a passing motor car. Nothing like it had been seen in those parts by the oldest inhabitant and it was examined with curiosity by the neighborhood. After some difficulty I exhumed the body where it had been buried by its captors. Upon examining it I was convinced at once that it was a badger though this animal has, to my knowledge, never been reported from this part of Westchester.

I brought the skull to our museum where the identification was confirmed When this country was new badgers were met with everywhere in open lands from the Alleghenies to the Pacific and as far north as Peace River. Now they have disappeared from the prairie states and are rare except in the high, dry plains where gophers and prairie dogs form an abundant food supply. The eastern limit of the badger is placed by Seton as Wisconsin. An animal with so indomitable a spirit,

so massive a head, and jaws filled with formidable teeth with a bulldog grip, locking themselves mechanically as they close, seems out of place in our quiet, peaceful Westehester hills. Whence came he and what was he doing here?

### The Path is a Guide to Nature.

What student and lover of nature does not like a path in the woods and through the fields? There is something enticing, yes, even enchanting in the beekoning of the distant vista of the path that leads one on and on. The



\ PATH IN THE WOODS AT ALL TIMES OF THE YEAR IS A GOOD GUIDE TO NATURE.

Cut by courtesy of "Photo-Era."

path is a parallel of human life. We can see only the immediate present, but where will that path lead us in its ramifications, what of the uncertainties that surround it, what are its surprises, what its entanglements, yes, what the disappointments? There is ever the charm of exploring the unknown.

These thoughts must necessarily come to one who rambles through the forest and Mr. A. A. Falls, who took the accompanying photograph is evidently a path lover. For the cut we are indebted to "Photo-Era" of Boston. Do not give this merely a hasty glance. You cannot see it even in the first five minutes of close examination. Sit for twenty minutes and gaze intently at that path, coupling it up with your own life. It is only when one puts human nature, one's own personality, into surrounding nature that it really becomes one's own.

Only a wood path but if ten thousand people gaze intently and personally upon that path there will be ten thousand different versions as to its meaning. Nature, after all, is a mirror of ourselves.

### The Heralds of Spring.

March winds are heralds, to proclaim The coming of the spring: They do not bear a charméd name, Yet vistas sweet they bring,

That open out, through April's gate, To flowery meads and bowers: The alchemy we now await, Of sunshine and of showers.

And when the finished work appears,
Behold a vision bright!
No purer joy through all the years,
Than this transcendent sight.
—Emma Peirce.

### Flowers as a Life Resource.

[FROM A CHICAGO DAILY PAPER IN GAR-DENERS' CHRONICLE.]

Folks who went to the La Salle Theater last night saw a comedy. In the office of Nat Royster, the manager, a tragedy was being enacted.

Several days ago Royster received complaints from Joe Daly, property man, that artificial roses used in one of the sets were being stolen. The flowers were not taken in large numbers. But every other day or so three or four would be missing. Detectives

worked on the case for a few days. The roses continued to disappear.

Yesterday the detectives arrested Sophie Korab, a theater scrubwoman. When the detectives and Royster questioned her she sobbed violently, but would not talk. Finally she found a champion in Miss May Dowling, of the theater staff, who pleaded for her release. Then Mrs. Korab broke down and told her story. Six months ago her husband, Anton, joined the army, leaving her to take care of the two children, John 2 years old, and Mary, 3.

A few weeks ago little John contracted an ailment. There was no money for adequate medical attention and he died. The day of the burial Mrs. Korab appeared as usual to do her scrub work at the theater. She saw the roses and purloined a couple of them. Next day she went to the cemetery and put the artificial flowers on John's grave.

The detectives made an exit. Miss Dowling slipped out and returned with a handful of real flowers. "For Johnny," she said, and wiped her eyes.

The scrubwoman fearfully asked if she could go. Royster requested her to stay. He left the room for a few minutes and he saw Daly, the property man; Charlie Heede, in the box office; Bob Gorning, the superintendent; the stage hands, the ushers, the doorman, the cigar store man next door, and the cafe man next to next door, and when he returned he handed \$60.35 to Mrs. Korab.

"For Mary," he said.

After reading this little tragedy woven around the disappearance of a few artificial flowers, who will declare that the beautiful flowers, the best that Nature produces, have no place in this careworn world of ours?

The Swedes have recently established a society for collecting and diffusing information concerning their great naturalist, Linnaeus. Its first president is a descendant of Linnaeus, whose name, oddly enough, happens to be Tycho.

The eye may well be glad that looks
Where Pharpar's fountains rise and fall;
But he who sees his native brooks

Laugh in the sun, has seen them all.

-Whittier.



All communications for this department should be sent to the Department Editor, Mr Harry G. Higbee, 13 Austin Street, Hyde Park, Massachusetts Items, Articles and photographs in this department not otherwise credited are by this Department Editor.

# The Brown Pelicans of Eastern Florida.

NE of the welcome sights to the winter tourist along the east coast of Florida, especially if he be following the coastal waterway known as The Inside Route, is that of watching

now flapping, now sailing, as the little band moves in perfect rythm with its leader.

On account of their large size—the wing spread of the adult being over



BROWN PELICANS SOARING.

little flocks of the great-winged, silent pelicans, as they move gracefully over the water with slow, measured flight, six feet—these birds are among the most conspicuous to be found along the coast, and although their breeding



RETURNING FROM THE FISHING GROUNDS.

range has for many years been practically confined to one small island in the Indian River, these interesting birds may be met with for many miles both above and below their island home.

On many islands in the Mosquito Inlet Reservation we found large flocks of pelicans in company with gulls and cormorants. At Eau Gallie I watched for a long time an adult pelican apparently teaching a well grown youngster the art of fishing. It is some-times

in their usual line formation, skimming low over the waves and fishing in the surf along the beach at Grant. No flight could be more graceful and charming than the slow "sailing" of these birds in perfect unison, as they unlulated in their flight with the rolling motion of the waves, dipping down into the hollows and rising over the crests, but keeping always close to the surface. A few flaps of their great wings now and then seemed to furnish momentum to carry them a long way



THE LICTURESQUE HOME OF WARDEN KROEGEL WHO HAS BEEN FOR MANY YEARS
GUARDIAN OF PELICAN ISLAND.

ludicrous to see the great ado with which these birds plunge into the water after fish. They will soar and wheel about most gracefully a few yards above the water; then suddenly turning, will drop with a great splash into a school of menhaden, and seem to plow up the water in their hasty endeavors to capture their victims which they scoop up in their great bills. Silvery spray is flung high into the air, and the resultant splash from these sudden plunges may be heard for more than half a mile across the water.

One of the most beautiful sights which I observed in Florida was a flock of brown pelicans stretched out

over the water, and so silent and so rythmic was their motion that one might fancy them propelled by the same power that carried along the blue waves over which they floated.

To visit the nesting colony on Pelican Island one must have permission from the government and the sauction of the warden who guards this island under the protection of the Audubon Society. Here at Sebastian, on the mainland, stands Warden Kroegel's picturesque home, under the shelter of a great, protecting live oak which spreads its broad, moss draped canopy completely over the house and doorward. Several shell mounds of the



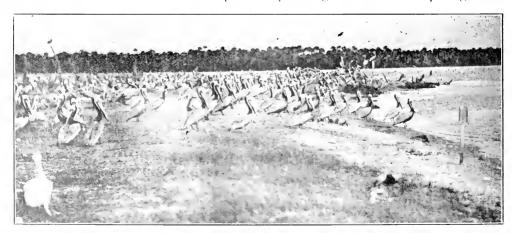
"OUR VISIT TO PELICAN ISLAND WAS ON THE 12TH OF DECEMBER."

ancient Indians are located here and some relics of value have been excavated from one of them.

President Roosevelt, in 1903, set apart Pelican Island as a permanent government reservation where the brown pelicans might be protected, as for years this island had been the natural breeding ground of these birds, and they were at that time in imminent danger of being exterminated by the plume hunters. Shortly after protection had been established, however, and the location of their permanent home designated, these birds for some unknown reason—unless it was to show their independence—suddenly deserted the island which they had so long occupied, and sought to establish themselves in new and unprotected territory. This somewhat alarmed the bird conservationists, but to the delight of all interested in their welfare, the pelicans seemed gradually to capitulate to the old ties and again returned to their ancestral island home.

This island was originally covered with mangrove trees wherein the birds built their huge nests, and although these operations have gradually destroyed the trees so that the island is now entirely bare, they have since continued in its use, placing their nests upon the ground at great peril of floods and storms.

Our visit to Pelican Island was on the twelfth of December 1913, and nesting operations appeared then at their height. We learned from the warden that nesting began about the first of October, which was about a month earlier than usual. While still about a quarter of a mile from the colony, in the warden's launch, I was conscious of a low whistling and squeaking sound from the young birds,



"A GREAT ARMY OF ADULT BIRDS SEEMED DRAWN UP NEAR THE SHORE."

which at a little distance blended into a low monotone. (No sound was observed at any time from the adult pelicans.) A strong odor of fish pervaded the surroundings.

As we neared the island a great army of adult birds seemed drawn up near the shore, as if to give battle at our attempt to land. A few groups of half grown young were paddling or flapping about in the shallow water. Before landing on the island we encircled it in

perched near-by on some of the stubs, or sat gorging themselves upon the dead young pelicans which were lying about. A flock of cormorants arose and left the island at our approach.

Only a few of the birds left their nests as I landed on the shore and walked carefully about among them. Eggs and young in all stages were at once noticeable. Groups of the larger young were wandering about like so many schoolboys, while others in the



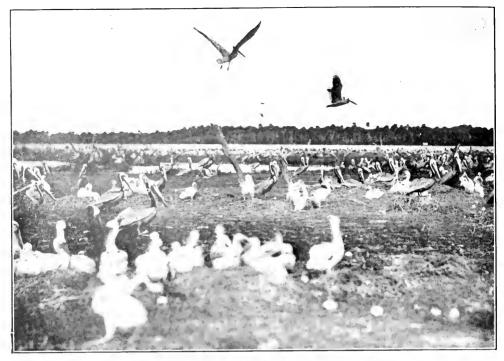
AN ADULT BLUE EAGLE WAS SOARING OVER THE COLONY.

the launch, keeping as close as possible to the shore and securing several pictures, as the birds paid but little attention to us while we were on the water. The bleached remains of a few trees could be seen sticking up near the center of the island, and there were a couple of old stumps on the shore near the southerly end. Every advantage seemed to be taken where a new could be placed at a slight elevation, though of course, the great majority of necessity placed upon the ground.

In one photograph an adult bald eagle may be seen soaring over the colony. Many scavengers found here a rich repast with little effort on their part at securing food. Buzzards were

nests were clamoring for food. Some were bathing near the water's edge. Individuals and small groups of the parent birds were constantly leaving the colony or returning from the fishing grounds not far away.

Some of the nests were well built structures of grass a foot or more in height; others seemed considerably dilapidated, while many were simply a hollow in the sand where the eggs might be laid. Most of these nests contained three eggs—this being the usual complement of the set. In color they seemed a pale bluish-white, but were mostly covered with a chalky deposit. A number of eggs lay scattered about on the bare ground, probably

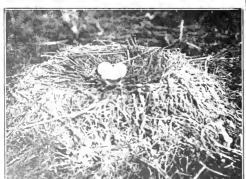


"ONLY A FEW OF THE BIRDS LEFT THEIR NESTS."

many of these being sterile.

One photograph in our series shows a typical nest containing one egg and a small naked youngster apparently but a few days old. Others show groups of young in and about the nests. Some of these seemed alarmed at my approach and scrambled away in a most awkward manner; a few showed an inclination to fight, but the most of them remained silent and paid no attention to me whatever.

The young pelicans are comparatively helpless until they are quite large, it being several months before they are



"SOME OF THE NESTS WERE WELL BUILT STRUCTURES OF GRASS."



YOUNG PELICAN A FEW DAYS OLD.

able to care for themselves. During this time they are subject to many dangers. Storms rage over the island destroying many young in their nests. On account of its slight rise above the surface of the river, and the unusual fact of these nests being placed upon the ground, a flood sometimes destroys them in large numbers, or causes the old birds to temporarily leave the island, while the young starve. For some reason, not fully understood,



"MOST OF THEM . . . . PAID NO ATTENTION TO ME WHATEVER."

practically the entire brood of 1913-14 (those pictured here) was later destroyed before the birds were able to shift for themselves. This meant a considerable loss, as we estimated fifteen hundred young and two thousand adult birds on the island at the time of our visit. From these facts it may be understood that the brown pelican has increased but little in numbers during the past few years.

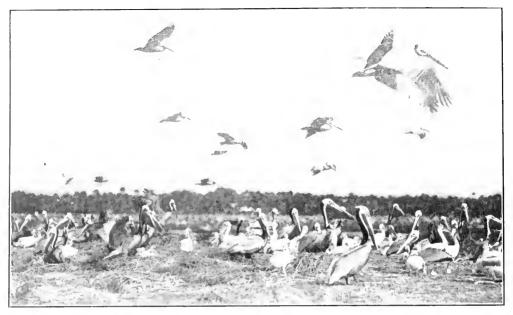
In the photograph of the adult birds just returning from the fishing grounds, it will be noted that the pouches of the flying birds are *not* expanded, and the statement that these



THE YOUNG ARE COMPARATIVELY HELLESS UNTIL THEY ARE QUITE LARGE.

great pouches are used for carrying fish to the young is an erroneous one. From the time of hatching until they are many weeks old these young are ied by regurgitation. Several of the adult birds upon the ground, shown in this picture, may be seen preparing to feed their young. In this process the pouch is extended and the partly digested fish "regurgitated" into the sac; the bill is then opened and the hungry youngster allowed to help himself, except in the case of a very small bird, when the parent probably places the food in the throat of the nestling.

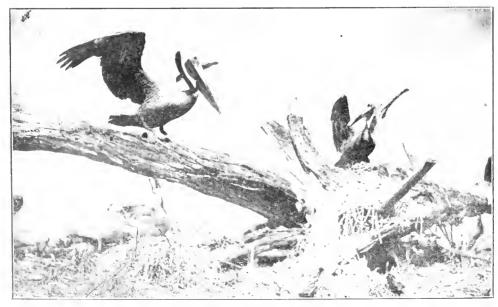
The awkwardness of these birds, both old and young, while on the ground is noticeable, and the feeding of some of the larger voung is sometimes an astonishing and somewhat remarkable procedure. A bird two-thirds the size of the adult may be seen with its head thrust completely inside the parent's bill and, in some cases, clear down its throat. This proceeding is not taken calmly by the parent bird, but is accompanied by all sorts of contortions and apparent efforts to release itself from what appears to be a very uncomfortable situation. In this way the two birds may be seen struggling about amid great confusion, especially if there are other young—as is frequently the case—making vain endea-



PELICANS PREPARING TO FEED THEIR YOUNG BY REGURGITATION.

vors to oust their companion and secure the coveted place at the source of food supply.

Another interesting episode in pelican life is the exchange of parental duties while the birds are incubating their eggs or brooding young in the nest. Both parents take part in these duties, and the exchange of places upon the nest is accompanied with the most profound "bowing and scraping," wingflapping and other emotional performances. Preliminary salutations of this sort are well shown in the picture of the two birds on the old stump. Both birds may be seen with wings partially spread and facing each other. Then, after due respects are mutually paid, pardons apparently asked and granted, and promises made to be faithful in each other's absence, the bird which is to relieve the one on the nest

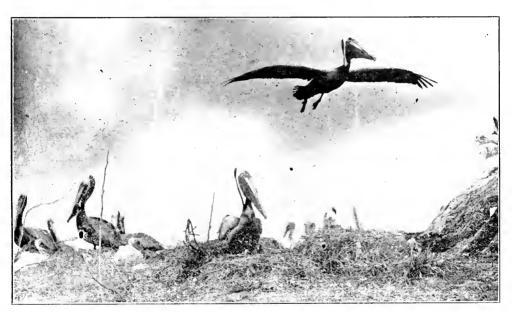


"PRELIMINARY SALUTATIONS."
Getting ready to exchange places upon the nest.

finally takes its place, while the other spreads its great wings, mounts into the air and is off to enjoy a sail over the bounding waves.

A bit of quiet home life is shown in one photograph. Under the sheltering protection of its parent, a tiny youngster may be observed here peering over the edge of the nest. In the nests nearby are contented little families, and floating upon wide pinions, like a veritable airship, the master aviator comes sailing home to his nest. Among these great birds, as among many other of

thousand birds when all were here, but on account of nesting accommodations upon this small island, which covers less than three acres of ground, their feeding is extended over a considerable period of time; and while a few sometimes nest on near-by islands, the great majority seem so attached to this one spot that they apparently prefer to postpone their nesting until others are through, rather than to take up their abode elsewhere. On the day of our visit we noted birds carrying material for new nests, while at the same time were young pelicans in all stages of



THE PELICAN IS SURELY A MASTER AVIATOR.

the wild creatures, an intimate study of their habits and their home customs discloses characteristics which appear almost human, and in the relations of parent and offspring we discover instinctive traits akin to our own.

In watching the pelicans we noticed that they always flew *high* and in regular order when going to the fishing grounds, while upon returning they as regularly dropped down and skimmed *low* over the water to the island, after they had risen above the bordering fringe of palms and sand hills which at this point separate the river from the ocean. This is illustrated in our first two photographs.

We were informed that the present number of this colony was about five development, from the egg to birds nearly two months old.

Nesting dates are considerably later for this species where they congregate for breeding on the gulf coast of Florida. The larger white pelican is also found here, although this bird seldom appears along the waters of the east coast, where the brown pelican reigns supreme.

Only those have produced permanent results who have interrogated nature in the spirit of devotion to truth and waited patiently for her replies. The work founded on selfish motives and vanity has sooner or later fallen by the wayside.—Locy, "Biology and Its Makers,"

# The Mocking Bird's Marvelous Versatility.

BY FRANKLIN J. HAYDEN, NOKOMIS, FLA.

During a number of seasons spent in Florida, I have been impressed more and more with the marvelous versatility of the mocking bird, which, as a name, discredits him. It is not impossible, I think, that other birds are mocking him, for he seems to have the songs and calls of most of our common birds as well as other songs they can never hope to sing.

I have heard him render the calls and songs of chewinks, meadowlarks, catbirds, brown thrashers, wood thrushes, wrens and red-winged blackbirds with such absolute accuracy that you would expect to see them all with him in the tree.

Once I came upon a mocking bird and a brown thrasher singing at the same time. They sang and sang while I stood between them and listened, but I could not detect the slightest difference in their songs. Had they changed places I should have been none the wiser.

What I love most in a singer is a voice that reaches the soul. In this respect the mocking bird is so far beyond the other songsters that I have heard as to render comparisons absurd.

Maurice Thompson said, "If I was going to risk the reputation of our country against a European nightingale I would choose for my champion a mocking bird from the neighborhood of Tallahassee."

Blanchan says, "This is the angel that the cathird was before he fell from grace. Slim, graceful, imitative, amusing, with a rich tender song that only the hermit thrush can hope to rival."

"All moods are his—delicate as the perfume of the first violet, wild as the storm, he knows the music of all sounds from the rustle of leaves and the whisper of hidden springs to the voices of the sea."

When I hear the mocking bird I exclaim, "Is it possible that a bird is doing all this with common air"

Sidney Lanier well said that the bird is a poet of the spiritual universe and, he might have added, the Shakespeare of all our songsters.

# An Enthusiastic Student of Winter Birds.

Mrs. W. Emmet Smith of Katonah, New York, sends a very interesting list of winter birds that have been observed by a near-by neighbor, Mrs. F. W. Gorham, who is a great lover of birds. Mrs. Smith says:

"An old apple tree, left standing for the purpose when the house was built, serves as a feeding place for the birds. From a position a little back from the window, Mrs. Gorham often watches them through a glass and derives great

pleasure from so doing.

"The table is the lid of a pail tacked to a branch of the tree. In it she places crumbs, grain and seed, scattering some on the ground. A piece of suct hangs on the tree. Mrs. Gorham says the pleasure of watching the birds abundantly repays for all the trouble taken.

"How thankful we should be for birds. What a blessing they are in destroying harmful insects, and what would a summer be without their sweet songs! It seems to me there is no better way of proving our thankfulness than by caring for them."

## A White Hawk.

BY C. D. ROMIG, AUDENRIED, PENNSYL-VANIA.

At noon, December 15th, after the cold spell and a heavy snowfall, the cawing of a crow overhead attracted my attention and I noticed that the crow was pursuing a snow-white hawk considerably larger than itself. The hawk was snow-white with the exception of the outer tips of the wings which appeared to be brownish.

The bird was soaring like a hawk but it may have been an owl, as its body and wings were somewhat stubby in outline. Owls are not supposed to fly in the daytime, but I recall the shooting of brown owls as large as crows that were flying about the cornfields in the daytime. At the time I believed they were hawks. In any event this was an extraordinary bird. It had possibly been driven from home by the severe storm and cold. Against a clear blue sky it was an unusual and interesting sight. It at least excited the crow and me too.

# Florida Should Wake up to Her Duties in Bird Conservation.

The nearly successful attempt to secure the establishment of a State Game Commission in Florida during the past season, was unfortunately blocked by the Governor, who vetoed the measure after it had passed both Houses in the

Legislature.

This state, with its myriads of waterfowl and marsh birds: sheltering, as it does, many of our northern birds throughout the winter months, and being in the path of many more of our migrating species, is an important one to the bird-lover and conservationist, and it is high time that better laws for bird protection were enacted here.

Most of the conservation work which has been done here, including the protecting of the great egret and heron rookeries which would otherwise have been destroyed, seems to have been accomplished at the expense and through the efforts of bird-lovers outside the state, and it would seem only fair for the state which reaps most of the benefit to at least support and help this work by proper laws and by the establishing of a Game Commission to enforce them.

Florida is now a winter playground for thousands of people from all over the country, and it seems highly important to have adequate laws for the protection of the wild life of this state, especially as the conservation of this wild life so vitally affects the inhabitants of other states and the good work which they are trying to do.

## Audubon Society Work.

Forty-six wardens have been employed during the past year to guard the various rookeries and protected sanctuaries under the supervision of the Audubon Societies. Reports from these wardens show that more than a million water-birds bred in these protected areas during 1917.

\* \* \* \* \* \* \*

A regular course in wild life conservation has been established at Cornell University, New York, a bill in the legislature appropriating \$15,000.00 for this purpose having been passed.

The many lectures and course of study conducted by field agents of the

society have made thousands of new converts in the interest of bird protection and conservation, thus aiding materially in both a moral and financial way the society's work during the past season.

In addition to Mr. Herbert K. Job's well-known work in his Department of Applied Ornithology, he has added, during the past season, to his valuable bird photographs another thousand feet of motion picture film, showing work in the propagation of water-fowl at the association's Bird Experiment Station at Amston, Conn., besides many interesting phases of the home life of several wild species not hitherto shown.

## The Weed-seed Eaters.

During the winter months our northeastern states are usually visited by several species of birds which would not, at first thought, be supposed to be of any special economic value. Aside, however, from enlivening the winter landscape, which all of these birds do, many of them perform a real service to mankind.. Chief among these is the tree sparrow, whose diet is composed principally of weed seeds. Flocks of these birds are common sights along our country roadsides and pastures from November to April, and investigation has shown that they prove of incalculable value in destroying the seeds of noxious weeds.

This species alone has been estimated to destroy no less than eight hundred and seventy-five tons of weedseed annually in the state of Iowa. buntings, usually abundant along the coast and often wandering inland to a considerable distance, are also very beneficial in this respect, a thousand seeds of the pig-weed having been found in the stomach of a single one of these birds. Mourning doves and bobwhites are also efficient weedseed eaters, and our common goldfinch at this season depends largely upon such diet for its food supply.

How welcome to the winter-weary folk, The first up-springing green, or bird-note sweet!

A harbinger of longed-for summer joys,
Of all that she alone lays at our feet.

—Emma Peirce.



# Frost Work that Resembled Bark and Leaves.

Newton, Massachusetts.

To the Editor:

Lately I have been thinking about nature. I do not understand how one

nomenon which has attracted my attention. I observed that Jack Frost had painted something on the window-panes. There were three windows in the room and each bore a layer of frost so thick that I could not scratch it off







FLOWERS, ROSETTE AND FERN IN FROST.

picture of large leaves gracefully placed, with a mass of small dots grouped in the centre to resemble tansy, was sculptured on the two panes facing the street. A huge tree grew outside near the windows with its

with the bark of trees troubled me! To me this appearance is an extraordinary occurrence and interests me greatly. I am auxious to hear what you may have to tell me about it. I keep my eyes open every minute in search of inter-



LIETY FOR SLOF FROST.

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branches barren of leaves. My friend said that the leaves of the tree were in form like those that were distinctly marked on the windowpane. The figures were as large as oak leaves, but resembled large beech tree leaves. Here was where my lack of familiarity

esting objects and extraordinary happenings which will give me worthy things to think about. You make every difficult subject interesting, therefore with your help it is a pleasure to learn.

Yours sincerely, Eleanor Reid Wheeler.

In regard to the apparently imitative work of the frost: Hoarfrost, in common with other water crystals, has a habit (we know not why any more than we know why one tree grows one way and another a different way) of crystallizing in a manner that resembles natural objects, such as trees, leaves, ferns, stars, etc. The designs are not influenced by objects near them nor. in the case of window hoarfrost, by external objects. The temperature, the humidity, the nature of the surface upon which they form and the play of the mysterious electromagnetic forces determine their forms. We may be sure also that the size of the particles of water vapor in the air has something to do with form determination; i.e., if they are of truly molecular dimensions (too small for the most powerful microscope to reveal) the crystals will be wholly crystalline in nature and form, fashioned rigidly according to the rule of six, according to their crystalline habit of growth and formation, and will have well defined axes, facets, lines. etc., such as true crystals have. But in the case of hoarfrost on windows and of window ice formation, doubtless a large number of the water particles in the air that form them are larger than true water molecules, consisting in part of groups of water molecules and particles of water of various (though of course extremely minute) dimensions, and hence not completely under crystalline laws. Water forms composed in part of these vapor particles larger than molecular water particles have a much greater latitude of formation, and we find them assuming the graceful curving forms and the various shapes not possible for wholly true crystals to take. The forms of window frost (?) that your correspondent mentions were probably not frost forms at all, but window ice crystals. Window ice forms always on wet windowpanes, frost only on dry windowpanes. Practically all the large so-called window frost designs are window ice crystallizations. Window ice assumes many graceful, curving, leaflike, vine-like and other similar designs. —W. A. Bentley.

Skunks bathe frequently, but will not swim unless forced into deep water.

## The Ambergris King.



Photograph from G. A. Walton.

Ever hear of an ambergris king? Probably not; for there is only one in the world —and here he is. Only a ton and a half of ambergris has been offered for sale in the the history of world: and of that quantity the "king" has handled more than half.

Down in the quaint old town of Provincetown, Massachusetts, at the head of a wharf in Commercial Street, is an unpretentious little building that is anything but attractive to one who comes to look for places of historic interest; vet it contains the throne of one of the most interesting men in the country—that of David Č. Stull, known as "the Ambergris King."

A ton of ambergris, at prices that have been paid there for it, would bring \$92,000, or twice the amount that a ton of gold would produce. And, of the ton and a half of ambergris known to have been offered for sale in the history of the world, Mr. Stull, as agent for a famous firm of French perfumers, has

handled more than half.

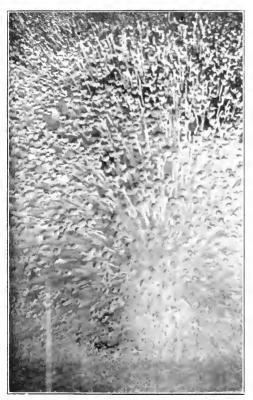
There is a never-ceasing cry for more of this substance from across the water, and it is a known fact that nothing invented as yet by man's fertile brain will in the least compare to ambergris as a base in the manufacture of choice perfumes. Dissolved in alcohol, it holds in solution the various oils and essences that compose the scents dear to the feminine heart.

The ambergris comes from a whale that has been careless about his diet, according to scientists. It is said that when he eats more squid and cuttlefish than is good for him he is attacked by this peculiar kind of mal-de-mar. These marine dainties have long, hard, and sharp beaks, and when taken into the whale's stomach in large quantities cause the forming of a substance that turns into ambergris. If the whale continues this sort of diet, it causes his day of reckoning to make an appearance when the monster mammal of the sea seeks shallow water and dies.

Mr. Stull has paid as high as \$500 a pound for the coverted substance. Not many years ago he paid \$18,000 for a single lump of ambergris; and his record price is \$35,000 for one lot of several pieces.—Every Week.

## Astonishing Bubble Formation in Ice.

Jack Frost is a freaky fellow; one never knows what he will do next nor why he does any one of his queer deeds. Of all the strange freaks that I have seen, one of the most interesting was done in a small aquarium jar in our laboratory on a recent cold night. The water was frozen solid, and in some mysterious way was filled with innumerable strings of bubbles radiating from a common center which appeared to serve as a headquarters for their de-



WHY THESE CURIOUS "STRINGS" OF "PEARL" AIR BUBBLES IN ICE?

parture. As far as observation can deeide, they appear in general to direct their course to that center or from it. The entire mass of ice appears to be filled with strings of pearls, and among them other equally beautiful pearls appear to have been tossed by the handful. Notice, too, the central group of diverging lines among the pearls of that part. These are air bubbles elongated in some unknown way into thread-like air channels that add much to the interest and mysterious beauty. The result is altogether one of the strangest and most inexplicible performances of the cold that I have ever seen. If any professor of physics in any college or if any one else can explain the matter, will be not kindly communicate with the editor?

Since observing this remarkable work my attention has been called to other ice forms, and I have noted that the bubbles frequently take somewhat of an alignment but I have not previously seen any so marked as these.

## Not a Joke, but a Coincidence.

Seriously and with no intent to tell a good joke, a correspondent in New York relates some ordinary observations of winter birds made by a neighbor, and then relates this somewhat startling experience.

"A friend of ours, living in the town of Greenwich, has a number of canaries and has raised several of them.

"One day her husband was entertaining her with opera music, and after singing several verses, increasing the sound in volume and possibly in discord as he is no musician, he struck up a third in impossible bass tones, and a canary perched high in his cage dropped to the floor dead.

"I had never known such a circumstance, but I have heard singing that seemed as though it would have a similar effect on me."

Japan has especially beautiful topazes. Their colors run from white through wine yellow, yellow blue, pale blue, pale green and brown. One of the finest known specimens stands three inches high, rising from a base of feldspar and having beside it a crystal of black quartz. A Wooden Flower or Wooden Rose.

That is what Professor William F. Ganong of Smith College, Northampton, Massachusetts, calls the interesting specimen from Mr. H. E. Deats that we pictured on page 250 of our January number.

In his interesting "Textbook of Botany" he further states in regard to this growth which is from a leguminous plant and is induced by a parasite.

of the tissues after the control stimuli have been inhibited, usually as result of some strain or other accident. Other burls, however, with various kinds of knotty growths, are started by presence of parasites, which also inhibit the usual control, presumably by chemical action. Of this nature is the remarkable 'wooden flower,' sold to tourists in tropical America. It is nothing but a stem in which a parasite has inhibited



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group a twin fram, he-ciated pin posts, described a twin fram, he-ciated pin posts, described arions fascint. I stems, with a booms, etc., he continues:

"In some cases such growths are apparators started by injurious strains, whill would explain their frequency at the lases of great branches; and very likely they represent areas in which the growth-control mechanism has been ruptured by the strain. It is interesting to note that a close analogy exists between these burls and the troublesome tumors which form in the human body, for the latter also are formless growths resulting from continued operation of the growth energy

lea not all part free to grow as it

An claim of and magnificant specimen has recently been presented to us at Arc \mathbb{DiA} by Arthur S. Baiz of Sound Beach.

Fine Specimen of "Wooden Flower." New York City.

To the Editor:

Several weeks ago, I had the pleasure of leaving with your daughter a "volcano flower." This was brought to New York many years ago by my father, who was Consul General in this city for Guatemala and Honduras.

I understand that this growth occurs

near the rim of the volcanos in South America, and is known by several names; sometimes they are called "roses" and again "Rosas de Infierno" the Spanish for "Roses of Hell," and I am told that the Indian name is "Cochij Riche." In general the wood of the host is of a light tint, slightly reddish externally and yellow cored. The inside of the "rose" is invariably darker than the host branch.

I obtained the following from a Latin-American magazine, which is published in this city, and which I believe will give you about as much information as I can obtain at this time, although possibly the American Museum of Natural History might be able to

give you further information:

exercs ien e found on the branch of and tready the invasion of a contral. and tree by the invasion of a contact pure solvenish before itself into them, we what actively one is be eigenist. This process is a process of the eigenistic contact and the solution of the contact active in the contact and the contact a to Learn, called the maller of the shape to an interest of section hardly shows any division of the fibers. The invader is short-lived —three or four years at the most—the wooden flower's dead image on the tree indicating its place of refuge. The size varies from two centimeters to sixty centimeters. The wooden flower must be regarded as an extension of the woody fibers of the host tree, not the parasite; 'the injury has not yet been studied, but there must be injury or the phenomenon is not explicable.' This strange and beautiful result is,

then, classed with the gall-nut found on oak-trees, or the red silky excrescence seen on rose-bushes; in all cases an envelopment of the foreign body by the fibers of the host occurs, in much the same circumstances as are responsible for the formation of the pearl in the oyster-shell."

I hope that you will find the above information of interest, and that the "rose" will give pleasure to you and those who may frequent ArcAptA.

Very truly yours,

ARTHUR S. BAIZ.

## Starlings in New Hampshire.

Nashua, N. H.

To the Editor:

Just at sunset the other day while down town on our main street. I noticed a flock of about a dozen's chings fly to the steeple of an old that bond church are isospect within. Another flock filter all as 13% in a literature of a state of a st

The strike of the Nashua.

## The Eggintical View of Nature.

A little while ago, at Buralo, I was the guest of a lady who, a fortnight before, had taken her seven-year-old boy for the first time to Niagara Falls. The child silently glared at the phenomenon until his mother, supposing him struck speechless by its sublimity, said, "Well, my boy, what do you think of it?" to which, "Is that the kind of spray I spray my nose with?" was the boy's only reply. That was his mode of appreciating the spectacle.—William James in "Talks to Teachers."



## The Heavens in March.

By Professor Eric Doolittle of the University of Pennsylvania.

HE most interesting arrival in our evening heavens is the beautiful planet Mars which in these early March evenings is seen shining with its reddish light nearly as high above the horizon in the east as is the bright golden Jupiter in the west. As the one

will not pass beyond the borders of our evening map until May and in the meantime Mars will continually mount higher and shine out more conspicuously in the evening heavens.

From the slow change of the face of the sky it now results that the western

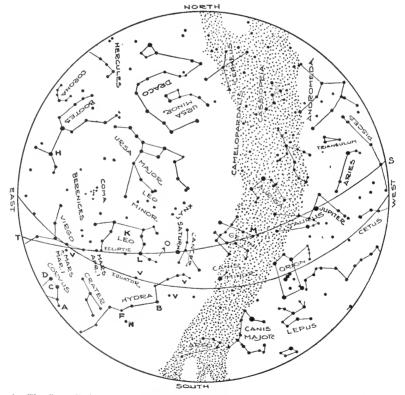


Figure 1. The Constellations at 9 P. M., March 1. (If facing south, hold the map upright. If facing east, hold East below. If facing west, hold West below. If facing north, hold the map inverted.)

planet sets the other rises, and as the weeks of the month go on the more brilliant Jupiter will be found lower and lower in the southwest, though it

heavens are more brilliant than the eastern. Almost all of the bright winter groups are now past the meridian and in the east there is just appearing

the first of the faint summer constellations, Virgo, with its promise of the time when warmer days shall come. All of the winter groups are still with us during this, the last of the winter months, but by April, Taurus will have begun to sink below the ground, Virgo will have entirely emerged, and even the Balances will be visible in the east and the transformation of the winter into the summer sky will be well under way.

## The March Stars.

One of the very interesting constellations is Hydra, the Watersnake, which now stretches entirely from the horizon in the southeast to the meridian. Only half of this interesting figure is as yet visible; the tip of the tail will not reach the meridian until the early evenings of June, and by this time the head will have begun to set.

On the back of this long, winding constellation there are the figures of the Crow and the Cup, while a group of faint stars over the tail of the Watersnake (not yet risen) was formed into a little figure known as the "Solitary Thrush."

Twenty centuries ago the Crow lay half above and half below the Celestial Equator; the slow precession of the equinoxes has changed its position in the sky until it is now no less than twenty degrees below. When first lettered, the star at A was indicated as the brightest star of this group, but it is now less than one-sixth as bright as the star at C and less than half as bright as the other three most important stars of the figure. It is now of an orange color; as early Arabians described it as red, it has probably changed both in color and brightness in recent times.

The star at D is of a pale yellow color but it has a deep blue, eight and five-tenths magnitude companion twenty-four seconds away. There are many variable stars in this constellation; the two at V sink from the seventh to the thirteenth magnitude in the course of eight to ten months. The orange star at B is also probably a variable and is a typical example of the second great type of stars whose

spectre resemble very closely that of our sun.

At a distance below the bright star at F equal to four times the diameter of our moon there is a remarkable planetary nebula which resembles Jupiter in the color and steadiness of its light. It is described by some observers, however, as of a steely, bluish light and is rather difficult in small telescopes.

The observer will welcome the great golden yellow Antares, at H, which is so bright and yet so immensely far away. And indeed the whole region of Bootes as well as the sky between this constellation and the Great Dipper will well repay exploration. In the center of the Constellation Leo, at the point K, will be found one of the starless regions of the sky, while at O, almost in a line with the Stars L and N, there is a celebrated variable of a fiery red color which varies from the fifth to the tenth magnitude in a period of about ten months.

## The Precession of the Equinoxes.

This slow change of the equator of the heavens, which has been referred to in speaking of Corvus, produces as the ages go on a great change in the apparent positions of the constellations in the sky, but it does not change the form or appearance of these constellations themselves. It is, in fact, merely the equator which is slowing moving. The intersection (V, Figure 1) of this circle with the apparent path of the sun among the stars SVT, is slowly moving westward, completing the circuit of the heavens in twenty-five thousand eight hundred years. in six thousand years it will have reached Gemini: this constellation will then lie on both sides of the equator and will rise in the east and set in the west, never rising higher in our sky than Orion does at present. The latter constellation will then be far below the equator. To observers north of fifty degrees north latitude the Dog Star, Sirius, will not be seen at all. thousand years later the latter star will be wholly invisible throughout the United States and the former star group, which is now so conspicuous in our evening heavens, will just rise

for a short time in the extreme south, and from northern latitudes will be

wholly invisible.

In the same way six thousand years ago the Southern Cross was visible throughout this country and even throughout England corresponding regions of the sky now visible were then wholly invisible. This describes why the constellations in certain parts of the sky were not named or described by the ancients; they were at that time so near the South Pole of the heavens that they were not visible from north-

the present month to be well observed. It will not reach its greatest elongation until April 7.

Venus is now steadily withdrawing from the sun's rays into the morning sky. On March 16 it will attain its greatest brilliancy and will then appear exactly as bright as it did on last January 5, when it shone so brilliantly in the evening heavens. By the end of the month it rises in the southeast fully two hours before sunrise, though it will not attain its greatest distance west of the sun until April 21.

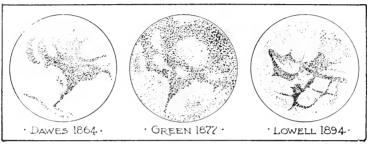


Figure 2. These drawings of the same region of Mars, made by observers with different telescopes, illustrate the difficulty of seeing the faint, uncertain markings except with telescopes of the highest power.

ern latitudes. When the great pyramid of Cheops was built Alpha Draconis was our Pole Star, and the central passage of the pyramid (as well as those in several others) was directed to this star.

Now our North Star is the rather faint Polaris, which has the advantage, however, of being very near the Pole. In twelve thousand years our North Star will be the magnificent blue Vega, and to one accustomed to the nightly view of the sky the spectacle of the heavens apparently turning about this star as a center would at first seem very peculiar; he would soon recognize, however, that it is only the direction in space of the axis about which the earth is rotating that is changed. The general appearance of the heavens would be unaltered by precession, but what interesting other changes may be brought about in the course of twelve thousand years we cannot at all tell.

## The Planets in March.

Mercury enters the evening heavens on March 12 but it will hardly emerge sufficiently from the sun's rays during

Mars is in excellent position for observation being in opposition with the sun and hence due south at midnight on March 18 though it does not reach its least distance from the earth until three days later. Then it will be but sixty-one and two-fifths millions of miles away. Though a view of this world is rather disappointing in a small telescope vet when the conditions are favorable the polar caps and the larger markings can be clearly seen even with a small glass. By careful attention the observer may also see that this world is turning around, the day on Mars being but thirty-seven minutes longer than the day on the earth. The finer markings and the so-called canals are, of course, invisible except in the largest telescopes.

Jupiter and Saturn are still in excellent position for observation, though by the end of the month the former will be low in the west. The former is slowly moving eastward and upward, the latter westward and downward, in the positions shown in Figure 1.

Uranus is in the morning sky in the constellation Aquarius where it is passed by Venus on April 2, Venus

then being three degrees eighteen minutes north of Uranus.

There are few occultations of the brighter stars during the present year though an interesting passage of our satellite over the quite bright star at M, Figure 1, may be witnessed on the evening of March o. As seen from Washington the dark edge of the moon will overtake and hide the star at 7 hr. 41 min. P. M. (Eastern Standard Time) and the star will reappear 1 hr. 10 min. later. These times differ much as one changes his position on the earth, however, and the only way for the observer to make the observation successfully is to note the position of the moon and star some little time before the phenomenon is to occur and estimate as well as he can the moment of disappearance. The star at M is described as a crocus-vellow color. It

is an interesting double, having a bluish, eleventh magnitude companion about eighty seconds away.

The center of the sun will cross the celestial equator and spring will begin 5 hrs. 26 min. A. M. on March 21. This day and the preceding night will be of equal length and at this instant winter will end.

The stars are blossoming in the sky, Fair lilies of gold in the fields on high: But the sun, which opens our earthly flowers,

Will the star-blooms close in the morning hours.

—Emma Peirce.

The American Association of Variable Star Observers is now collecting data on more than three hundred variable stars.





The Brighter Phases of War.

"War is hell." This war in particular seems to be the most hellish of all. Its bad features have been so prominently brought to the minds of the people in its awful horror and devastation that there is no need for us to dwell on the subject. In the main we are trying to publish a magazine that shall be especially valuable at this time distracting the mind of the reader from horrible things. It is in this spirit that attention is invited to some of the good features of the war, and these mostly from the nature or the Arcadian point of view. They are exactly what we have all the time been preaching and practising.

To depart from the subject for a moment by way of illustration, consider that darkness will not make a photograph. It is the light that changes the sensitive plate, yet darkness is essential to good photography, not only in the dark room, but in the shaded portions of all such pictures. And the photograph, no matter of how favorable a subject, depends upon the blackness to bring out its beauty. In regard to this much discussed question of war, is not the situation much the same?

From our point of view, among the brightest things in this war era is the fact that it has done what the enthusiasists in the study of nature in times of peace were unable to do. For the last decade or more a few faithful naturalists and teachers have been urging the cultivation of school gardens as an important part of an education. By the majority of the public these earnest people were regarded as faddists or as overly enthusiastic. But everybody now believes not only in school gardens but in every other kind. There are many of us faithful workers in gardening, especially as a factor in the child's

education, who can hardly refrain from exultantly murmuring even if we do not audibly express it, "I all the time told you so." Then another company, faithful yet at times discouraged, have been clamoring, "Leave the crowded city with its artificial life and go back to the farm; return to the simplicity of life of the early settlers; go back to hard work, earnest endeavor and direct dealings with old Mother Nature."

Everybody agrees with that, and it is one of the bright spots brought out in a beautiful picture by this blackness of war. There are many of us, and some have been called cranks, who have argued for the beneficial results to be obtained by leaving stuffy homes and taking to the woods and fields, or that nature's sanitarium is the best in existence. Plenty of enthusiasts believe that a good position for a young man to assume is not to bend himself like a bow, to support the sides of buildings at street corners, to engage in frivolous talk and to spit on the sidewalk. That kind of position is not the best developer of physique and that kind of talk on the worthless things of life is not the best mental gymnastics for the developing of intellectual strength. We all the time have said, Go away from the cities; go into camp; take long walks; get out in the realms of that beautiful old Sovereign, Mother Nature.

And now the "I-told-you-so" is visible in the vastly improved appearance of all those young men who return from camp on a furlough. They have been in the open for only a few weeks, but they have been transformed by the magic of outdoor living. How erect, how well poised, how graceful they are. As we look at some of them, we exclaim, "Can these be the slouchy, pale, weak-kneed fellows that some of them appeared to be before they went into military training!" It is a curious fact that peace and prosperity tend to develop hunched shoulders, bow-like

backs, while war makes men erect, fine in appearance and wholesome to look at.

Areadian simplicity means exactly what the country is now urging that everybody shall do. Work hard, live near to nature, and as simply as possible; for frivolous expenses and foolish pursuits substitute economy and hard work faithfully and earnestly performed.

War has also supplied our tables with better fare. Formerly every one was regarded as a crank who said, Eat less meat and more vegetables. We now say that such a man is a patriot and shout hurrah for his patriotism. Many of us with Arcadian instincts could all the time have told you that. They who have been preaching and practising it have been called vegetarians and cranks. It took submarines and howitzers to blow even a part of the superfluous meat from our tables.

Hoover did not inflict suffering but furnished luxuries in his war breads. We never did believe in the autocracy of white bread.

The farther we depart from nature the worse the result always seems to be. When we refuse whole wheat for the jejune yet beautiful white bread we are not heeding nature's call. Now thanks to the war, we have economical war bread that, in comparison with the innutritious plain white bread, is an undreamed of luxury. The mixtures of Graham, whole wheat, bran, rye, buckwheat, corn meal are blessings. They are bright spots in a picture brought out by the blackness of war. The world will never go back to where it was before the war.

So much for the nature and Arcadian point of view. The naturalists are delighted by this return to the simple things of life. We leave to the preachers in the pulpits what is especially their province, the discussion of our return to the serious, thoughtful, religious point of view, to which the horrors of war are bringing us. One of the best preachers who have pointed out these good features of the war, while not a preacher in the common acceptation of the term, is in reality one of the best. We refer to Harry Lauder. Hear his words.

"In the days before the war, young

Englishmen and Frenchmen leading gay, careless lives, with hardly a thought for the morrow or for such shadowy things as death or a future life. 'Let us live and be merry' was the ery then, but now it is all different. Because when men know that at any moment a shell may explode in their midst and blow them to shreds, or that an order may come during the night for certain regiments to make ready to go over the top at dawn, their thoughts are mostly on their God and on the life to come . . . . . all through the night you see silent, yet calm and peaceful faces in the dugouts, and, somehow, the religious atmosphere makes a definite impression upon you. So much so that one night an officer said to me, very quietly:

"'When I see the men this way, I sometimes wonder if this war was not brought about by God as the only means of making the world think of Him and His laws more often!'"

The Reverend Oliver Huckel, Pastor Second Congregational Church of Greenwich, Connecticut, says it is a blessing to churches. He cites as follows:

"One striking instance is the united church services . . . . . Personal preferences and personal conveniences have been set aside, and all the churches have united heartily, lovally and enthusiastically in these services. I am sure that this war-measure and coal-exigency are proving an emphatic blessing to the churches. It is inaugurating an era of Christian fellowship from which, I pray God, there will never be a retreat, even after the war. We have all made mutual concessions. but we have found how delightful is this united fellowship in worship and service. I believe it is a distinct leading of God, a providential step in the progress of God's kingdom."

Truly, he who unfolds to us the way in which God works through the world of phenomena may well be called the best of religious teachers. In the study of the organic world, no less than in the study of the starry heavens, is it true that "day unto day uttereth speech, and night unto night showeth knowledge."—John Fiske, "Excursions of an Evolutionist."

# Admiration not for a Part, but for the Whole.

Here is a modern fable in which I am chief actor:

I fell out of a boat; a friendly hand pulled me in. I cried to my friend, "All my life I shall be grateful to that hand." The friend replied, "Why not to all of me?"

I was in straightened financial circumstances. I had not ten cents with which to buy a sandwich; the gnawing pains of hunger made me sick. A friend handed me a half-dollar and said, "Go, eat." I grabbed his pocketbook and exclaimed, "O pocketbook, all my life I shall be loyal to you in deepest gratitude." The friend, pained, said, "Why does he not take me as well as my pocketbook into consideration?"

I was engaged in a tangled quarrel with one who had been my friend. I consulted a lawyer; the wise man patiently heard my story, and in a few words told me what to do. In my depth of gratitude I exclaimed, "O wise mouth, I shall always admire you for the words that have come from you." The lawyer said, "What a peculiar man! He does not take me into consideration."

I was lame and decrepit; a youth offered to do an errand for me. When he returned I thus adored him: "O you legs that have so swiftly brought me what I needed, I shall always hold you in the highest appreciation." The youth, with wondering eyes, spoke his thoughts, "Why does this man limit his appreciation to my legs?"

But perhaps the more astonishing fact is that the gratitude was soon forgotten. The helping hand, the generous pocketbook, the wise mouth, the nimble legs were soon out of mind. O gratitude, how limited you are not only in time but in extent.

You, you, reader, man, woman, child, you are as foolish as I was for in these recent strenuous times you have said of old Mother Nature as a whole, "O how I appreciate her coal fields, her wheat fields, her potato patch. O Mother Nature, you have warmed me from your storage in the ground, and to those mines I shall ever be grateful. You have fed me from the fields, and to those fields my heart will always be

bound with the strongest ties of appreciation." Does it require the ear of imagination to hear old Mother Nature say to each one of her children, "You have learned only a part of the lesson of the war. You are grateful, yet for only a part of my bounties to you. You will come into your full heritage of appreciation and gratitude when you learn to love me as a whole, and desire to know me better. Thus far you have learned to see me only in part."

## Photographing Lenses Wanted.

Early in the war, The Guide to Nature called attention to a well-organized movement in Great Britain to lend to the government for use in the army various sorts of field glasses, telescopes and other optical instruments, the property of individuals. Something of the same enterprise is now under way in this country. The pressing need, just at present, is for camera lenses to equip the observation airplanes of the new fleet. In particular, the government desires to buy the following:

Zeiss, Tessar anastigmat, working

aperture F. 3.5 or 4.5.

Bausch and Lomb, Tessar, F. 4.5; Voigtlander Heliar anastigmat, F.

The focal lengths of all these should

lie between 8-1/4 and 20 inches.

Persons having any of these lenses which they are willing to sell, should send price and description to the Photographic Division of the Signal Corps, U. S. A., Mills Building Annex, Washington.

Snowdrops.

Out of the snow, into the glow
Of the quickening, vernal sun;
These fragile blooms from nature's looms,
Whisper that spring has begun.
—Emma Peirce.

### The Greater Untold Problem.

In the present coal situation we wish to bring to the surface one of the most important factors of the problem apparently lost sight of so far as common talk and newspaper articles are concerned. Everybody nowadays says, "Where can we get the coal?" Apparently we are the only ones who raise our voice to ask, "Where on earth shall we get the money to pay for it?"



## A Burning Question.

Sound Beach, Connecticut.

Dr. Frederick H. Getman, Stamford, Connecticut.

Mr. Dear Dr. Getman:

Will you kindly inform me for publication in regard to the chemical action involved in the production of charcoal. I have become much interested in the subject since we began to use in the office an air-tight, wood burning stove for coal saving. I had not seen one of these stoves since I was a boy, and it brings back the memories of those days and how I wondered even then at the action of an air-tight stove. We can put in heavy wood and a fierce fire follows if the draft is left on, but if it is closed entirely the wood is converted into charcoal, and on opening the door we sometimes find almost a peck of the live coal which flames up as soon as air is brought to bear upon it.

I recall as a boy spending much time with the woodchoppers and coalpit burners. I remember that they made a huge, semispherical pile of wood, covered it with earth and lit a fire in one end. Gradually the fire worked through the entire pile and converted it into charcoal. I remembered being puzzled by the expression, "We must look out that it does not get on fire," when the fire was even then working all through it. Men stamped down the turf and kept it tight as the pile settled.

I recall that I was informed at one time when I was in Pennsylvania that a coal mine there had been on fire for many years and apparently was burning without the admission of air. What is the action in these cases? If the mine burns and the charcoal is produced without air or with a very limited supply, what is the difference in the combustion that produces ashes and that that makes charcoal?

Yours very truly, Edward F. Bigelow.

## Wood Charcoal.

FREDERICK II. GETMAN, PH.D., F. C. S., STAMFORD, CONNECTICUT.

Wood charcoal is made by burning wood in pits or kilns with a limited supply of air, or by heating wood in closed retorts.

The process of charcoal burning may be illustrated by the following simple experiment. Place a few small pieces of wood in a crucible and cover with sand to protect the wood from the air; heat the crucible until all combustible gases cease to be evolved. On cooling the crucible and removing the protecting layer of sand, the wood will be found to have undergone complete transformation into charcoal with concomitant shrinkage in volume.

It is to be noted that charcoal is here produced without access of air—the layer of sand completely or almost completely excluding any atmospheric action. From this we see that charcoal is produced from wood by the action of heat without undergoing combustion.

The process involved in the production of charcoal is known as "destructive distillation." In general, this term refers to all cases of chemical decomposition produced by the action of heat in the absence of air. The substances which are ordinarily subjected to destructive distillation are of organic origin and hence the end-product consists largely of carbon. For this reason the process of destructive distillation is often designated as "carbonization."

When wood is heated in the air it "takes fire" and burns to ash. When charcoal is heated in the air it also ignites and burns to ash, but charcoal is not an intermediate product in the combustion of wood. Charcoal is the residue from the destructive distillation of wood and absolutely no air or oxygen is essential to its production—in fact the more air there is present the smaller the yield of charcoal will be.

The production of charcoal does not involve any specific act of combination as does the combustion of wood. On the other hand it involves a series of decompositions of the complex organic compounds which compose the wood brought about by heat in the absence of air. The end product of these decompositions is charcoal. The heat energy supplied to the wood is used up in bringing about the decomposition of the wood and in the formation of the various volatile products.

The primitive method of making charcoal was to pile small logs or bitlets of wood into beehive-shaped heaps, leaving a shaft in the middle of the pile to serve as a flue and providing several small holes at the base to admit air. The pile was then covered with turf to prevent free access of air, and a small fire of brushwood was lighted in the center of the heap, the air supply being regulated so that combustion progressed very slowly. During the burning, the volatile products escaped and in about a fortnight the fire died out leaving a mass of charcoal. This process is very wasteful, between eighty and ninety per cent. of the wood being lost by combustion to say nothing of the loss of many valuable volatile by-products.

This crude method of charcoal burning, while still followed in many parts of the world, has been supplanted by more improved methods in which more efficient carbonization is secured and the by-products are conserved. heating the wood in iron retorts without access of air, a true destructive distillation results. The gaseous products are conducted through appropriate condensing appliances to remove the liquid by-products, while the non-condensible gases are led back to the firebox to be burned as fuel in the distillation of more wood. When cariomization is complete, the retorts must be allowed to cool before opening; otherwise the charcoal would ignite on exposure to the air. When wood is heated in a closed retort the first product to be given off is steam. On further heating, various organic compounds are formed such as acetic acid (the acid contained in vinegar), methyl alcohol (wood alcohol), acetone, furfural and

From the distillation of one handred

pounds of hard wood, such as maple or oak, there are obtained approximately thirty pounds of charcoal, fifty pounds of liquid products and twenty pounds of gaseous products.

When resinous woods are destructively distilled, volatile oils, such as turpentine, are carried over with the steam and collect on the surface of the distillate or else form a homogeneous

solution with the woodtar.

Wood distillation has developed rapidly in this country, there being at the present time over one hundred such plants producing annually charceal and by products valued at approximately \$10,000,000.

#### Cloudland.

How wonderful the cloudland, Its drifting, changing forms! Now ominous and threatening, The kind that presage storms:

Now delicate and fleecy,
As feathery fine as lace,
A veil of cobweb texture,
Drawn o'er the sky's fair face.

Those heaped-up, billowy masses, The "cumuli" in form, Make continents and islands, When days are bright and warm:

Strange shapes therein are sculptured, Of turrets, faces, gnomes; And often things fantastic, Not found in any tomes.

The "cirri," high above them,
Those silvery films of ice,
Gleam cold as distant snow-peaks,
For cooling draught suffice.

"Mare's tails and mackerel scales"
Bear menace in their look;
Their message and their meaning
We read, an open book.

-Emma Peirce.

Two people of Bellingham Center have formed the habit of borrowing The Guide to Nature and hunting in the woods for the things it describes. One lady says, "I have never taken so much comfort in my life before with a magazine. Everything in it is told so sweetly and so simply." You people at Arcadia must have discouragements enough to meet and like to know when people enjoy the magazine.—Edna S. Knapp, Caryville, Massachusetts.

## IN MEMORIAM.

## HONORABLE ZENAS CRANE

DALTON. MASSACHUSETTS
BORN DECEMBER 8, 1840
DIED DECEMBER 17, 1917

In the death of the Honorable Zenas Crane, The Agassiz Association has lost one of its best friends and liberal supporters. He was an Incorporator from the first incorporation in Pittsfield, Massachusetts, in 1892, to December 15, 1908, when the headquarters were changed to Stamford (later to Sound Beach), Connecticut, and the present Board of Trustees was organized—later incorporated in Connecticut in 1910.

Zenas Crane received at Williston and elsewhere a thorough business education. In 1865 he rented the Bay State Mill and operated it until May 15, 1877, when it was destroyed by fire. Upon its site was immediately erected a larger mill by the new firm of Zenas Crane, Jr. & Brother, the junior partner being Winthrop Murray Crane.

Mr. Crane served as a member of the Executive Council during the administration of Governor Robinson in 1884-1887. He was the senior director of the Berkshire Mutual Fire Insurance Company, a director of the Chicago and Northwestern Railroad, St. Paul and Omaha Railroad, Boston and Albany Railroad and the Pittsfield National Bank.

He gave the Museum in Pittsfield known as the Berkshire Museum of Natural History; also the Boys' Club in Pittsfield erected in 1906.

Mr. Crane married Ellen J., daugh-

ter of Charles J. and Frances Kittredge of Hinsdale. Those who survive him include Mrs. Crane; a daughter, Mrs. Samuel G. Colt of Pittsfield; two sons, Z. Marshall Crane of Dalton and Charles K. Crane who is now in Paris engaged in war work; three sisters, Mrs. George T. Plunkett of Hinsdale, Miss Clara L. Crane and Mrs. Harry O. Bates of Dalton, and one brother, Winthrop Murray Crane, former Governor and United States Senator.

In all ways Mr. Crane was a helpful citizen, a painstaking trustee of the wealth that became his and a factor in the local life always to be counted up-His kindly personality will be missed beyond the Berkshire environment. He gave money to Williams College, and in other well considered ways that included the country and causes which took in the welfare of the world. For some time back Mr. Crane's activities had been restricted because of limitations which years and failing health had put upon him. His was a good life, representing substantial usefulness to his fellow men, and so he will be remembered and honored. \* \* \* \*

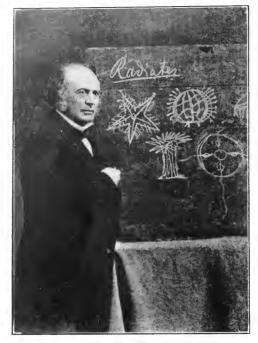
Mr. Crane was greatly interested in the study of nature. He sent us a liberal check frequently. His last contribution was received the week before his death. We have lost one of our very best friends.

## Appreciation of the Agassiz Method.

East Orange, New Jersey.

To the Editor:

In reading through the pamphlet on The Agassiz Association, I was very much struck with the picture of the Professor at the blackboard with a piece of chalk in his hand. After my



AGASSIZ AS A TEACHER.

graduation in medicine I spent a most delightful season in Cambridge at the Museum of Zoology, the pet scheme of Agassiz, then run by his successors upon the plan set down by the founder.

One of the most interesting and likable men I met there was Count de Pourtales, who showed me particular attention in a thousand ways, embodying in all his teachings the simplicity of his master whom he followed from France. The methods of teaching were entirely new to me, contrasting strangely with accustomed book study. Waterloo surely stared me in the face when the Count placed a starfish in front of me, a notebook and pencil, with the remark, "Write down what you see!" For one whole morning I did not see anything but blankness, but gradually it dawned upon me what they wanted, and I must say that the old notebook, crude as it was, is the most cherished possession I have, for it always awakens memories of those most delightful days when I was taught *to sec*.

I lived in the atmosphere that seemed to be a part of Agassiz's exhaustless spirit, and the exponent of that spirit in a large degree was Count de Pourtales.

It would be impossible for me to recall any incidents that could be fixed upon as carrying out the idea formulated by Agassiz, but the whole general tone of the school was that of seeing for yourself. It was plodding work, not very much accomplished each day, but the constant effort to do something yourself really brought results eventually.

This incident has no public interest, but I clearly remember dissecting an alcoholic specimen of a Brazilian fish one warm morning, when Alexander Agassiz came through the laboratory accompanied by Dom Pedro, the then Emperor. I can find no reason why he should have stopped at my table and asked what I was doing, but he did, and I had the pleasure of telling him that I was studying one of his own country's fishes, which seemed to please him mightily, for he continued to ask me questions, some of which I could answer, others I "let go by the board."

There was great informality in everything done in the school, no rigid rules for conduct, but nevertheless there was apparently an unwritten code that kept the room in a quiet state that made for study and contemplation. For it did seem as though at times one's thoughts were looking through and away beyond the specimen under study, speculating upon many and wondrous things suggested by the subject.

This I apprehend was what the master was looking for, to see if he could instill that spirit of the imagination that could carry you back, as well as forward, into the mysteries of creation. You are aware of the antagonism Agassiz's views created among the adherents of the evolution theory, but I apprehend today, with all the so-called light science can bring, that neither side can be proven entirely wrong. I am quite sure that evolution cannot prove everything.

I would like to refer to one particular faculty possessed by Louis Agassiz which was highly developed, that was

his ability to draw with both hands, and simultaneously. This feat I have seen performed repeatedly in his public lectures in New York and Brooklyn, before my course at Cambridge. It was always a surprising, and a some-



AGASSIZ AND COUNT DE POURTALES.

what speculative attitude on the part of the audience, as to whether both pieces of chalk were coming out right in the end, but when he started in at the head of a fish, there was no uncertainty when both hands ended at the tail!

I have only seen two other public men who could do that feat, Waterhouse Hawkins of London, and John C. Dalton, Professor of Physiology in Columbia. From the fact that this thing could be done, it has always seemed to me that any child that showed a tendency toward being lefthanded should be encouraged in the use of that hand, while the right one was being cultivated at the same time. The contrary course is too often followed in utterly ignoring this tendency, depriving the adult of an extremely useful and practical addendum to his outfit.

I am sorry that I cannot add more to what I have already said, but my apprenticeship was a long while ago, but one thing I can say—that what little I learned in my brief sojourn in Cambridge has always been a stimulus to learn more, and this I apprehend is the

main idea in the Agassiz movement, to instill a growing and a continuing interest in things about you.

Morgan Willcox Ayres.

## Good Words for Our Work.

BY G. STANLEY HALL, PH.D., LL.D., IN "YOUTH, ITS EDUCATION, REGIMEN AND HYGIENE."

"The Agassiz Association, founded in 1875 'to encourage personal work in natural science,' now numbers some twenty-five thousand members with Chapters distributed all over the country, and was said by the late Professor Hyatt to include 'the largest number of persons ever bound together for the purpose of mutual help in the study of nature.' It furnishes practical courses of study in the sciences; has local Chapters in thousands of towns and cities in this and other countries; publishes a monthly organ, 'The Swiss Cross,'\* to facilitate correspondence and exchange specimens; has a small endowment, a badge, is incorporated, and is animated by a spirit akin to that of University Extension; and, although not exclusively for young people, is chiefly sustained by them.

\*Later succeeded by The Guide to Nature.

## Our Ernest Thompson Seton Chapter.

Officers: President, Carol Marmon; Vice-President, Cecile Dudley; Recording and Corresponding Secretary, Charlotte Driggs; Treasurer, Monroe O'Flynn; Curator of Collections, William Hoisington. Number of members, twenty.

In the year 1916 we organized an Ernest Thompson Seton Chapter of The Agassiz Association. It was quite successful and all Wabanaki took an interest in it. So this year it was continued with new officers elected.

We have decided to use as a meeting place Casa Penikese, a small cabin which is really an ideal spot quite a distance away from the Mesa (the main building) with a fireplace and long rows of shelves on which the curator can arrange our nature specimens.

We are to hold regular meetings once a month but go on observing outings at least once a week, usually on Wednesdays. We have lectures, some with lantern slides. Sometimes we



THE SKATERS IN FRONT OF ARCADIA.

talk about the stars and on our visits to ArcAdiA, at Sound Beach, we look through a telescope and see mountains and craters and plains on the moon. We also see planets and double stars.

CAROL MARMON, President. CHARLOTTE DRIGGS, Secretary.

The museum at the University of Pennsylvania has been exhibiting a new collection of South American pottery, the work of a long extinct race of which not even the tradition remains. Among other features are immense funeral jars in which two entire human bodies could be seated side by side.

The United States Bureau of Fisheries is just beginning systematic and detailed work on the edible clams of the Pacific coast. Little is yet known of their life history; but there seem to be great possibilities of a cheap food supply.

## ArcAdiA at Several Ages.

The round of the seasons brings an ever changing series of panoramic views at ArcAdiA, represented by the climes and ages of the year. In our January number we showed the snow age. Just previously to that we could readily have shown, as was explained in the article, the gondola age when all our buildings, paths and fields presented a fairly good picture of Venice. It is no exaggeration to say that one could have gone all over Nymphalia and parts of our garden in a flat-bottomed boat. Then came a long, dry, cold snap and the glacial age was represented, much to the delight of the young people who found the skating on the Maher premises in front of ArcAdiA, and also in Nymphalia, our nature study park, entirely satisfactory, as is shown in the accompanying illustration.

# Please remember this educational uplifting work in making your will. Form of Bequest to the Association

I hereby give and bequeath to The Agassiz Association, an incorporated association, having its principal executive office at ArcAdiA, in Sound Beach, in the town of Greenwich, Connecticut, the sum of \_\_\_\_\_\_dollars



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## Forest Conservation on Big Scale!

"I venture to assert," said the lecturer, "that there isn't a man in this audience who has ever done anything to prevent the destruction of our forests."

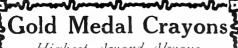
A modest-looking man in the back of the hall stood up.

"I-er-I've shot woodpeckers," he said.—Boston Transcript.

In nature's changes through the year, Enchantments never cease:

Her ways are ways of pleasantness, And all her paths are peace.

-Emma Peirce.



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# The Guide ature

Vol. X

**April 1918** 

No. 11



## EDWARD F. BIGELOW

Managing Editor

Published Monthly by THE AGASSIZ ASSOCIATION ARCADIA: SOUND BEACH, CONN.

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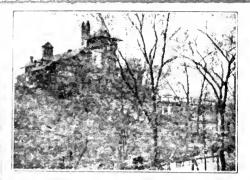
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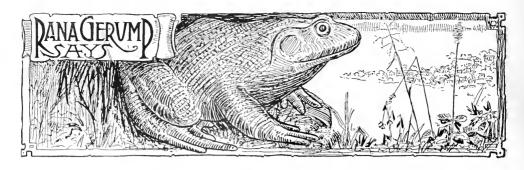
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## F. Beehler, Retiring.

We have lost an advertisement—that of Beehler, Stamford. His patriotism shown in sending his sons out of his business to war, together with not the best of health, make it necessary for him to close the business. Mr. Beehler was a regular advertiser in The Guide to Nature for many years, and highly appreciative of this magazine as a local advertising medium, and of Arcadia as a community center. We have always felt that he had for us a personal bond of interest and that his heart was with us in our great work.

We can but reciprocate this kindly good will and give expression to what everybody in Stamford and vicinity knows, that Mr. Beehler has conducted a first-class business in men's furnishing goods and in a manner highly creditable to himself and satisfactory to his customers. Personally he has been popular with a large number of men who regard him as a royal good fellow and highly appreciate his social qualities and his ability to entertain a company. His oratorical and recitative accomplishments are better than those of the average amateur and, had he not been so successful as a business man, he would perhaps have turned his attention to the cultivation of his next best talent—that of public enter-The ability to entertain seems not so much to depend upon talent as on royal genuine good will toward an assemblage of people. We take great pleasure in extending to Mr. Beehler the personal and hearty good will of the editor of this magazine and of every one who has assisted in the development and efficiency of The Agassiz Association.

## Where to Begin to Win This War.

In the national crisis there are just two points:

- I. We must win this war.
- 2. We are going to win it!

Had a letter from Horace W. Graves at Camp Funston the other day. He says that the boys are all right, all right, thank you, and gives the laconic advice not to worry about the "poor soldier" but take care of the people at home. Now that is good philosophy. The soldiers can be trusted to do their duty. It's up to us at home.

Have had several letters from Uncle Sam down at Washington. He says, "Food will win this war." Aye, there's where it's up to us. We've got to get more food. We must tickle the earth with hoe and plough and a lot of other agricultural tools till Old Mother Nature laughs with a harvest.

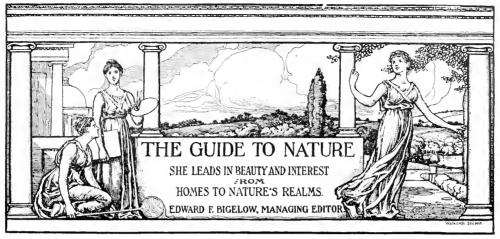
Of course everybody who reads this magazine knows that the place to get agricultural implements is at The Lockwood & Palmer Co.'s big store, where everybody goes to begin to win this war by solving the more food problem.

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Volume X

**APRIL**, 1918

Number 11

## How Honeybees Produce Honeycomb.

By Edward F. Bigelow, ArcAdiA: Sound Beach, Connecticut.

CONTINUED FROM THE FEBRUARY NUMBER.

Unanimous Support of the Thesis by Eminent Natural Scientists.

OME of our readers have remarked, intending to be complimentary as to the thesis, that the demonstration is so plain that they do not see any reason why anybody should think anything else, and consequently they do not see any excuse for using fourteen pages of the February number to prove an evident fact. From my point of view the thesis is so convincing that these criticisms of wasted space are well founded.

In this number we publish the unqualified support of many prominent scientists. They fully sustain the thesis

But it is necessary to settle this question everlastingly and authoritatively. I am not publishing the letters of some who disagree with the theory especially of prominent scientists that frankly and surprisingly admit that they do not know. Several of our influential textbooks and, as mentioned in the previous number, some of our leading bee journals insist on the actual "intentional" hexagonal construction.

Some one has defined commerce as the taking of goods from a place where there is a supply to a place where there is none. I have for a long time known that the leading laboratories of the land are in accord with what I call my thesis, though I distinctly assert that I claim no originality except in the method of demonstration. vears ago I began to tell some beekeepers that natural scientists do not agree with them. The beekeepers maintained that they are right and the natural scientists wrong. My purpose in using so much space for the text and illustrations was not only to carry knowledge from where it exists to where it does not but to carry it in a convincing manner. I believe this to be the proper work of The Agassiz Association, that clearing house of information. I have never desired to make original discoveries except in methods of popular exploitation. The original publication and the following letters from the ablest scientists of this country should forever establish the fact that the hexagons of honeybees are the outcome of

strictly physical laws and not the result of blind instinct nor of any biological "intent" and still less of anything in any way approaching an intelligence almost superior to human intelligence.

## My Thesis and the Darwinian Theory.

In my article on "How Honeybees Produce Honeycomb," page 256 of our number for February, I made this statement in regard to the bees: "They never yet have been able to make a hexagon nor to learn how to make one, Darwin and a host of minor lights chiefly the utilitarian beekeepers, to the contrary notwithstanding."

I did not mean to imply that I disagree wholly with Darwin and with the utilitarian beekeepers for on some phases of the discussion I am in perfect agreement with them. In developing the demonstration I could not explain all points of view, but several scientific friends who cordially support my thesis say that Darwin held a similar opinion and that I am in accord with him. One learned professor says that I do injustice to Darwin when I imply that there is any disagreement.

Darwin was a careful observer, and was nearly always correct in his observations and in the statement of facts, but not all of us will agree with all his deductions. He was so intent upon strengthening his thesis of the struggle for existence, natural selection, survival of the fittest, etc., that he used some facts as a part of his philosophy that in my opinion do not belong there. The very fact that in his "The Origin of Species" he devoted space to the subject of comb building shows that he regarded it as part of his theory of evolution. Many aspects of honeybees and perhaps even of comb building, rightly belong in a philosophy of evolution but the structure of the hexagons does not. I quote from him:

"By such modifications of instincts which in themselves are not very wonderful,—hardly more wonderful than those which guide a bird to make its nest,—I believe that the hive-bee has acquired, through natural selection, her inimitable architectural powers."

"That individual swarm which thus made the best cells with least labour

and least waste of honey in the secretion of wax, having succeeded best, and having transmitted their newly-acquired economical instincts to new swarms, which in their turn will have had the best chance of succeeding in the struggle for existence."

Aye, there's the rub. "Has acquired . . . . her inimitable architectural powers," and "newly-acquired economical instincts." On the structure of the hexagons I agree as perfectly with Darwin as I would in a discussion of hexagonal soap bubbles, but I deny that there have been any acquired instincts, etc. Whenever hexagons were produced as a result of the honeybees working in wax, they were solely the result of physical laws as perfectly as they are now and for the same reason.

Let me illustrate by a partly imiginary story. I was taking a company of pupils on an inspection tour through an insane asylum and its grounds. As we were walking in a picturesque place, an attendant called my attention to an old man sitting in the shade of a tree with a basket of balls that he was tossing one after another in the air. Said the attendant, "I think you will find his answer interesting if you ask him what he is doing."

"Yes, sir," the old man said, "I am quite an expert in making these balls come down to the ground. When I was a young boy I began to throw balls into the air; they did not come down very well, but I have practised at this all my life, and now," as he tossed another, "you see I have acquired an instinct. I possess inimitable gravitational powers so that after these long decades of practise I can bring them down in a perfect manner."

In the building was another aged person with a clay pipe and soapy water engaged in blowing a pile of bubbles on a plate. Said the attendant, "That man thinks he is a geometric artist."

"Yes, sir,' he replied, "I am a skilled man because I have all my life practised blowing bubbles. I began when I was a boy and obtained inferior hexagonal results within the pile, but there is nothing like keeping at it. I have practiced all my life and," to illustrate his argument he dipped his pipe in the suds, "now, you see, I have acquired

new soap bubble instincts that give me, sir, the title of geometrical, hexagonal artist. You will be surprised to learn that my first soap bubbles were like the cells of a bumblebee, but I have gradually worked through the various stages. It took me decades and decades but I have at last come to artistic perfection."

There is no doubt but that gravitation, not skill, brought the balls to the ground, and that pressure made beautiful angles within the pile of bubbles.

That is the way in which I feel about Darwin's claim as a part of his evolutionary theory that honeybees have learned how to make hexagons. The honeybee, instead of learning could not from the very first have avoided making hexagons, when she rubs off rough wax and scrapes the interior of her rising cylindrical pile of a series of circles of wax.

CANNOT ADD OR STATE THE CASE BETTER.

Yale University, Osborn Zoological Laboratory, New Haven, Connecticut: Alexander Petrunkevitch, Professor of Zoology, Sheffield Scientific School.

I have carefully read your article, and find that I cannot add anything to it, nor state the case better. There can be no question whatever as to the truth of your statement that the hexagons are the outcome of physical forces. In former years I have worked a great deal on bees, and have noticed the irregularity of the cells to which you call attention, and which is apparent even to a casual observer. There is no more intention in the hexagon construction of the bee cell than in the spiral curve of a snail or the radial structure of a starfish.

"YOU ARE ABSOLUTELY CORRECT."

Purdue University, Lafayette, Indiana: School of Science, Stanley Coulter, Dean.

I think that you prove your thesis beyond the possibility of successful contradiction. I have for a long time been perfectly convinced that the hexagonal shape of the honeybee cells was due to pressure and not to any operative intelligence on the part of the bee.

As a matter of fact in my lectures to my classes I have always held to that opinion and have tried to demonstrate experimentally the fact that such forms cannot be formed in any other way than by pressure. The distribution of pressure in the fluid content would inevitably result in the circular outline of the bounding walls unless they were absolutely rigid. The evidence given by the free cells in the comb seems to me to be sufficient justification for this opinion.

I congratulate you, however, on having worked out the thesis in such complete detail and in having massed the arguments in favor of it in such a complete and convincing fashion. From my point of view you are absolutely correct

NOTHING LEFT TO BE SAID ON THE OTHER SIDE.

Starford University, California: David Starr Jordan, Chancellor.

I do not think that you have left any opportunity for anything to be said on the other side. Bees make hexagons because being round animals working close together, they cannot make anything but cylinders, and cylinders become hexagons where they lie side by side.

"I AGREE WITH YOU."

Harvard University, Bussey Institution for Research in Applied Biology, Forest Hills, Boston, Massachusetts: Economic Entomology, Professor W. M. Wheeler, Dean.

In regard to your paper on the honevbee I would say that I agree with you that the fundamental shape of the bee cell is circular in cross section. believe the paper making wasps show the transition from circular to hexagonal cells much better than the bees. The first cell formed by the mother is circular as are also the cells built around it, until they are carried up high enough to interfere with the other cells when the outlines become hexagonal. This is beautifully seen in any of the combs of any of our paper wasp nests and has been carefully worked out by Janet in his papers on the European wasps.

LITERALLY CHECKED UP HIS APPRECIATION OF A "MUCH NEEDED SCIENTIFIC JOB."

Doctor George M. Gould, Atlantic City. New Jersey. Author of a long list of scientific books.

I am so delighted with your admirable article on honeycomb that I am sending you a little cheque for \$10.00 subscription account, The Gride to Nyture. You have done a much needed scientific job! It is strange that after the long and numerous studies of the bee you have outdone all the students in solving the riddle. I have long had a suspicion that something was wrong with the hexagonal theory.

\* \* \* \* \* \*

"I SEE NO REASON TO DOUBT YOUR CON-CLUSIONS."

University of Pennsylvania, Philadelphia, Zoological Laboratory: Professor C. E. McClung, Zoologist.

It seems to me that your account is very plausible and reasonable. Upon theoretical grounds I see no reason to doubt your conclusions. The work of your Association would seem to be of a character to do much good for general biology in this country and I wish you much success. I hope the time will come when such agencies as yours receive the practical encouragement due them. You noted no doubt the place assigned science in the program of the Labor Party of England. It was most encouraging to find the appreciation of the fundamental position of science in human affairs.

"PROVE YOUR POSTULATE . . . BEYOND QUESTION."

The Brooklyn Institute of Arts and Sciences, Department of Education Professor John J. Schoonhoven, Department of Zoology.

Permit me to express my appreciation of your interesting and illuminating article on the honeybee in The Guide to Nature. Your investigations seem to me to prove your postulate in regard to the formation of bee cells beyond question. You have done a distinct service for students by these studies and investigations. Too ofter traditional knowledge goes unchallenged especially concerning matters of

everyday experience and no one thinks of subjecting them to the acid test of science as you have done.

"YOUR ARTICLE SEEMS TO MAKE IT CLEAR."

State Normal College, Ypsilanti, Michigan: F. R. Gorton, Professor of Physics.

I have read your article on comb building with a great deal of interest. It is my feeling that we are apt to give animals and insects credit for much sagacity and highly developed instincts where it is not merited. In fact a being of a superlative order might offer certain operations of the human race as evidence of marked genius in cases where man has simply followed physical laws.

I have the greatest admiration for the honeybee which has been a source of amusement as well as amazement for many years. Its so-called instincts are remarkable and afford many points of vantage of which we can make use in the handling of a colony. Nevertheless, it is for the scientist to discover if possible what are actually instincts and what are purely physical operations. I think your thesis is correct in the main, but I should like to present an additional fact or two which seem to bear upon the subject somewhat vitally.

Your article seems to make it clear as to the spacing of cells when started on plain foundation, and it is alse plain that if the cell walls are to be worked thin by pressing and scraping they will be worked out to rather sharp angles which will be more or less rounded out as the bees leave much or little wax in the finishing process. Further, cells might be three, four, five, six, or more sided if it were not for two physical facts (1) the cell must be symmetrical from the fact that it is measured, worked, and fitted around the body of the bee, and (2) it must include an angle which is contained in 360 degrees, or at least nearly so. Three and foursided cells satisfy the second condition perfectly, but conform too poorly to the shape of a bee's body. In brief, the six-sided figure is the only flat-sided symmetrical cell which does fulfill both conditions. It is not that the bee knows how to make the hexagonal ceil, but be

cause she can build no other with the building processes at her command when it comes to grouping cells side by side with their openings even. Freak cells arise when abnormal conditions are forced upon the insect, as at the edge of the comb, drone cells, queen cells, etc. The most remarkable thing about the honeybee, to my mind, is not its ability to build a comb of wonderful beauty and symmetry, but in the unexcelled equipment which Nature has given so small a body to produce and care for half a dozen entirely different products, with perfect precision selecting each for its best use. Can these capacities be as well explained as can the process of cell building?

"I MOST CERTAINLY AGREE WITH YOUR VIEW."

Garrett P. Serviss, Closter, New Jersey: Well-known, skilled writer of popular science articles.

I most certainly agree with your view that the bee, like other constructing insects, works on the basis of a circle, turning around her own center of gravity as a sort of fulcrum. Darwin, as I remember, demonstrated this fact. It is easy to see how the hexagonal form arises from the simple intersection of circles placed at central distances determined by the bees crowding as closely as convenient for working. A single bee working alone will make a circular cell. That fact alone demonstrates the truth of the view that the hexagonal shape of crowded cells is merely a mathematical necessity arising out of the situation and not originating in the brain of the bee.

POETRY WON'T CHANGE FACTS.

Hanover College. Indiana: Professor L. L. Huber, Department of Chemistry and Biology.

I have read with unusual interest your article, "How Honeybees Produce Honeycomb," especially since your theory concerning the form of the wax-cell corresponds to a personal theory that I have fostered for some time myself. I know of course that a good number of the "orthodox" poetically inclined nature worshippers who indulge in more sentiment than science reject this, but that does not prove the same false. Nor does the attitude of the commercially inclined bee journals

detract from the feasible character of the theory.

\* \* \* \*

"MY PERSONAL OPINION THAT YOU ARE ESSENTIALLY CORRECT."

The University of Texas, Austin: Professor D. B. Casteel, School of Zoology, Author of "The Manipulation of the Wax Scales of the Honeybee."

For the last few years I have been engaged in another line of research, so do not feel entirely competent to give you an opinion upon your thesis. However, my personal, rather than my strictly scientific opinion, is that you are essentially correct in your views. I studied the same problem to some extent when working at Washington about five years ago and I have a number of combs which were constructed under experimental conditions. I was of the opinion at that time, as I now recall, that the form of the wax cells was largely determined by the manner in which they were closely crowded together, and also by the manner in which the bees handled the wax with their mandibles. At least it can be said that a "natural" explanation of this mathematical regularity of the honeybee cell is far superior to any anthropomorphic interpretation.

"ALWAYS TAUGHT THAT THE CELLS WERE MADE IN CIRCLES."

Rhode Island Normal School, Providence, Rhode Island: Professor William S. Vinal, Biologist.

I have always taught that the cells were made in circles and became hexagonal through pressure. I have never observed the bee making the cells. Linville and Kelly, Textbook in General Zoology, p. 65 say in regard to the social wasps: "This material is fashioned by the feet and mandibles into circular cells, which became hexagonal as their number is added to and the pressure increases." I have always understood that this phenomenon is common in nature as in the pressure of plant and animal cells the tissues often show hexagonal cells.

"CLAIM IS ENTIRELY CORRECT."

Miami University, Oxford, Ohio: Professor J. A. Culler.

I have read your article with a great deal of interest and think your claim is entirely correct. "BEES WORK ONLY IN CIRCLES."

Teachers College, Columbia University New York City: Professor M. A. Bigelow.

Of course you have the right theory. So far as I know, no entomologist of the last hundred years has claimed that bees directly make hexagons. The evidence is cumulative that they work in circles and that the hexagons are the "outcome of physical laws," as you

It is a well-known fact that many objects in biology are hexagonal because they are surrounded by six companions of approximately the same diameter, and they become hexagonal because of mutual pressure. I believe you have mentioned the familiar case of soap bubbles in the mass. I recall that at one time I was working on the embryo of a crustacean of which it was possible to get the transparent eggs to develop under pressure between glass slides. The result was a single laver of flattened cells all of which were hexagonal, except those at the border. which were slightly hexagonal-that is, they were rounded on the outside where they were in contact with the water, and had three flattened sides in contact with the adjoining cells. When after many hours I released the pressure all of the cells rounded up and became spherical, and the result was a pile of spherical cells, such as you are familiar with in the case of the embryo of the starfish and many lower forms in which the cells of the developing eggs are not pressed together.

I thank you for calling my attention to this interesting problem, presented

in such an attractive way.

\* \* \* \* \* "ARTICLE IS VERY INTERESTING AND EX-CELLENT.

Sheffield Scientific School of Yale University, New Haven, Connecticut: H. L. Wells, Professor of Analytical Chemistry and Metallurgy.

Your article is a very interesting and excellent one, and I believe you are perfectly right that the honeybees make the hexagonal combs by accident and without mathematical knowledge.

I get the same idea from Darwin that I get from you, and I should still refer any one to Darwin to learn about this

matter.

"I THINK YOU ARE UNDOUBTEDLY RIGHT."

Carnegie Institution of Washington, Station for Experimental Evolution, Cold Spring Harbor, Long Island New York: Professor Charles B. Davenport.

I think you are undoubtedly right that bees tend to make their cylinders with the greatest economy of wax and in doing so remove all the thick interspaces that lie between cylinders and thus reduce the cavity to the form of a prism approximating the hexagon which is, as you point out, the natural result of placing a number of cylinders with minimum walls as close together as possible.

"YOU HAVE MADE YOUR CASE,"

Elory McKendree Avery, Cleveland, Ohio: Physicist, Author of a large number of books on physics, chemistry and philosopy.

I have carefully read your article on "How Honevbees Produce Honeycomb."

As you must know, I am not qualified to speak e.r cathedra on such a subject but I have found the article exceedingly interesting and my best judgment is that you have, as lawyers say, made your case.

HEXAGONS ARE NOT MADE BY BEES BUT ARE THE RESULT OF PRESSURE.

University of California, College of Agriculture, Agricultural Experiment Station, Berkeley, California: Geo. A. Coleman, In Charge of Apiculture.

My own observations confirm yours; i.e., that the bees start the cells as a circle, or cylinder, and it is pressure that makes them hexagonal. \* \* \*

"YOUR POSITION IS UNDOUBTEDLY COR-

The University of Illinois, Urbana, Illinois: Professor Henry B. Ward, In Charge of Department of Zoology.

I think your position is undoubtedly The bee naturally approxicorrect. mates a circle although not very exactly at that, and the mechanical influence of crowding circles together is to produce hexagons. With best wishes for your valuable work.

"BEES DO THINGS BECAUSE THEY CAN'T HELP IT:"

Iowa State Horticultural Society: Eugene Secor, a Director, Forest City, Iowa.

I like the way you treat your thesis. I have thought for a good many years that people generally attribute too much intelligence to the honeybee. In all my fifty years' experience with them I've never seen any indication of thought. Intelligence signifies power to reason—initiative. They do many things that show a lack of reason, but nothing that leads one to think they have improved on any of their original processes. They do things because they can't help it. They were made that way. Maeterlinck speaks of "the spirit of the hive," I believe. That's a good definition of most of their actions. \* \* \* \* \*

"UNDOUBTEDLY DUE TO PRESSURE."

Connecticut Agricultural Experiment Station, New Haven, Connecticut: W. E. Britton, Ph.D., State Entomologist.

I have read your interesting article in The Guide to Nature for February and have no quarrel with the ideas which you have expressed. The hexagonal shape of the cells of the honeycomb is undoubtedly due to pressure as you have stated.

"YOUR WELL WRITTEN ARTICLE."

American Museum of Natural History, New York City: Frank E. Lutz, Entomologist.

I have read your well written article on honeycomb with a great deal of interest. I had supposed that all up-to-date students of bees believed that the roughly hexagonal shape of the cells comes about in the way you state but, from what you say, it appears that they do not.

\* \* \* \* \* \*
"SIMPLE AND SENSIBLE."

"Popular Science Monthly." New York City: Waldemar Kaempffert, Editor.

As for honeybees, I must frankly repeat that I know nothing about them. But I will say this for your theory. It is simple and sensible. Personally, I am more willing to accept it than I am the theories which presuppose in a bee the abilities of a Sir Christopher Wren.

Big Archaeological Collection.

Through the generosity of Dr. W. I. Hildburgh, the American Museum of Natural History has become the fortunate possessor of an archaeological collection made up of some four thousand specimens from Central New York state, which well illustrate Iroquois Indian life in prehistoric and colonial times. It is a remarkably full and valuable collection, rivaled only, if at all, by that in the New York State Museum at Albany.

The Hildburgh collection has for many years been known to archaeologists as one containing exceedingly rare types of stone and pottery pipes, gorgets, banner stones curiously carved stones used for ornamentation or as badges of authority, native copper implements including kettles and knives, stone axes, chisels and pottery. It also contains a number of the ornamental bone combs for which the ancient Iroquois were noted. One of the specimens, without doubt the finest example of its kind, is ten and one-fourth inches in length, with teeth one and three-fourths inches long. The carving represents two quadrupeds—probably wolves rampant, with upturned mouths holding a serpent's head. Another specimen has a man standing behind and probably laying hold of a rampant animal whose head is gone. One has two bears rampant. In this only the teeth are missing. Another has an animal standing with the head turned over the back of the comb. The tail of the animal and the teeth of the comb are broken. Still another is suggestive of European contact, inasmuch as the design consists of a human figure with buttons down the front of the garment, probably imitating a military costume. A number of bone fishhooks are also in the collection. Owing to their fragility, such specimens are rarely found intact.

The collection, as a whole the most complete now in New York, has been presented by Dr. Hildburgh as a memorial of his father, the late Henry hildburgh.

Every path is filled with beauty, If only we would look: Could seeing but be made a duty, Behold an open book!

—Emma Peirce.



All communications for this department should be sent to the Department Editor, Mr. Harry G. Higbee, 13 Austin Street, Hyde Park, Massachusetts. Items, Articles and photographs in this department not otherwise credited are by this Department Editor.

# The Swallows—How to Secure Them for Friends and Neighbors.

BY THE REVEREND MANLY B. TOWNSEND, NASHUA, NEW HAMPSHIRE.

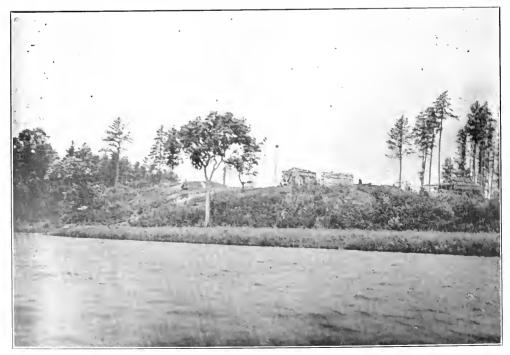
Some one has said, "In time of peace prepare for war." It is, therefore, timely for us now to begin our plans to attract the birds and induce them to make their homes with us next summer. If we live in the country it will be an easy matter to obtain plenty of bird tenants. If our homes are in the city, this will not be so easy, though by no means impossible, as many have proved by experience.

Among the most interesting and useful birds that man has induced to associate with him are the swallows. Four species in New England have con-

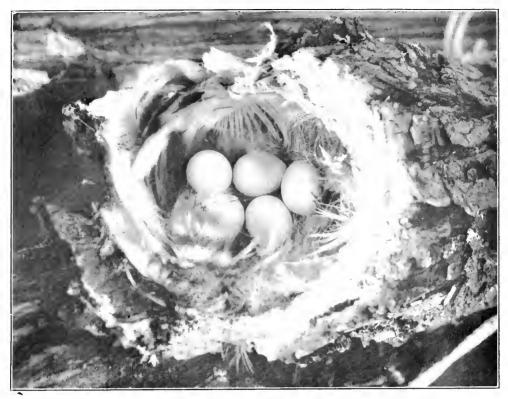
fided themselves to his company—the tree, the barn and the cliff swallows and the purple martin.

The tree swallow nests in hollow places, usually under natural circumstances in a hole in a tree; but it is easy to induce this sleek, trim creature with the steel blue coat and pure white waistcoat to inhabit a box, if it is conveniently placed for him. In fact your bird box is more likely to be rented by the tree swallows than by any other tenants except the bluebirds.

The purple martins, unlike the tree swallows which nest in solitary pairs, are extremely gregarious. For them should be provided a colony house consisting of many rooms. Just before their arrival in the spring, the English



OCCUPIED PURPLE MARTIN HOUSES ON POLES IN OJIBWAY INDIAN SUMMER CAMP ON LITTLE BOY RIVER, MINNESOTA.



TREE SWALLOW'S NEST BUILT IN DEAD WILLOW STUB OVER WATER. Photograph by Dr. T. C. Stephens.

sparrows should be summarily ejected, else the martins may be prevented from taking possession. Yet the martins are not always to be defrauded, especially if the house be a nesting site of long standing. The author knows of such a colony in Maine. Every year when the rightful owners return from the south, the sparrows are in possession, they having "jumped" the claim. Then begins a sustained and spirited warfare. The sparrows are in and have the advantage of possession. The martins are out, but possessed of a clear knowledge of their rights. After a week's maneuvering the sparrows are invariably ousted and leave, loudly proclaiming their opinion of the victors. In a neighboring bird house the sparrows and martins have proclaimed a truce and live and breed amicably together. This, however, is a new structure, where the sense of possession is not so strongly inherent as in the case of the old house that has been used for many years exclusively by the martins.

The Indian loved the wild birds and called them his friends. On a canoe trip through the wilds of Minnesota

near the headwaters of the Mississippi River, the writer noted that the Ojibway Indians had put up bird houses in which the martins were breeding. Every Indian hut had its martin house. Truly the Red Man must have a poetic soul thus to love and care for these gentle creatures.

The cliff swallows and the barn swallows have allied themselves with man, The barn swallow was originally a cave dweller. But with the advent of the white man, he left his caves and boldly adopted the barn as sort of artificial cave in which to build his mud nest. The cave swallow originally built against cliffs, and does so to this day in some sections of the country. But he too has taken to modern improvements and become a "progressive," plastering his gourd-shaped nest of mud pellets under the eaves in favored spots. Almost any barn with convenient entrance will attract the barn swallow, but the cave swallow is of much more local distribution, shunning painted buildings and plastering his nest against the rough, unpainted boards.

Swallows of all kinds are expert flycatchers, taking all their food on the wing. Happy should be the fortunate individual who can attract about his place numbers of these beautiful and useful birds. They will keep the air swept clear of all mosquitoes, gnats and other flying pests. A certain farmer "way down east" has succeeded in getting all four species to nest in his doorvard—the martins in a colony house, the tree swallows in individual bird boxes and the barn and cliff swallows inside and under the eaves of his barn. Every year when his friends arrive from far-off South America he gets a quantity of clay from the near-by lake and mixes it to the right consistency in his doorvard. The swallows sit about expectantly waiting. sooner has he stepped aside than they are at it, filling beaks with clay pellets which they, skilled masons as they are, work into the structure of their homes. Here is a hint to all who wish to help these birds and to attract them for This man lives far from neighbors. towns and railroads, in the big woods. in the heart of a mosquito infested region. But while the swallows are about the mosquito pest is negligible. The birds snap them up as fast as they appear in the doorvard.

Now is the time to plan our attractions for the swallows and other birds. Build your bird houses, fasten them in position on poles or on trees, and have the tenements ready when the migrants appear in the spring.

### The Extinct Dodo.

Mt. Morris, Illinois.

To the Editor:

Some persons not versed in natural history, when they hear the dodo referred to, imagine it to have been some fabled bird of the distant past. As a matter of fact, up to about two hundred and fifty years ago, this bird was plentiful on the Island of Mauritius, near the African coast, its only known habitat. It derives its name from the Portugese word "doudo," meaning "simpleton." The bird was twice as large as an average sized turkey. Its plumage was ash-colored, its bill darkish, and its legs and feet clumsy and yellow. No dodo was known to exist after 1681.

While Dutch navigators who landed on the Island of Mauritius in the Sixteenth Century called this bird "walghvogel" or "nauseous," because it was not very palatable with any kind of cooking, yet it became extinct because



THE EXTINCT DODO.

it was eagerly sought for the table in the absence of daintier food. In 1870, when Colonel Nicholas Pike was American Consul in Mauritius, he presented to the American Museum of Natural History of New York City, through Mr. I. Carson Breyoort, a number of bones of this extinct bird that had been excavated on the island. With these bones and some others received from the University of Cambridge, England, a complete, articulated skeleton has been constructed and is on exhibition in the above mentioned museum. The restored specimen, shown here, is also the property of this museum.

H. E. ZIMMERMAN.

As a matter of fact the dodo was "eaten off the face of the earth by gluttonous man." Although not a dainty it was doubtless better than the loon, albatros or shearwater, all of which are eaten, and it was killed and devoured by the Dutch navigators. Almost any fresh meat tastes good after three or four months at sea, and the dodo was big, fat and easily caught. Several were brought alive to Europe

and were painted by Roelandt Savery and others, and these paintings furnished the basis of Rowland Ward's excellent restoration. Dr. Goode would have been charmed with it, for it was one of the many things he planned to do but did not live to execute.

Our bird was given by Walter Wi-

nans.

A very large number of bones were recovered from the *Mare* (marais) aux songes, Mauritius by E. T. Newton.

F. A. Lucas.

### Puzzled Robins.

Atlantic, Iowa.

To the Editor:

We often hear the expression that reason makes mistakes but that instinct is infallible. I send a photograph to

place, and the second in being unable to distinguish with certainty the spot selected. One picture is taken from the open door looking outward. The distance was not sufficient to get the fourth nest on the plate, but the edge of the fourth can be seen in the picture taken outside the building.

Frank C. Pellett.

Eagle's Nest Destroyed by Fire.

Word has been received that the big bald eagle's nest at Nokomis, (formerly Venice) Florida, which has been a landmark in this vicinity for a score of years, has been destroyed by fire. This nest was of unusual dimensions, being twelve feet in height and seven feet in diameter. It was a solid mass of sticks, added to year after year, and was known to have been occupied for



THE FOUR NESTS OF ONE PAIR OF PUZZLED ROBINS.

which I would like to call the attention of those who believe that instinct is not liable to error. A pair of robins started a nest on my study porch, on which there are four spaces just alike between the rafters. The birds did not seem to be able to distinguish among the different positions and soon had four nests under construction at one time. will be seen by the picture, three of them were nearly completed, although eggs were deposited in only one. When the nest was finally completed and one or two eggs had been laid, the birds discovered that there was not sufficient room above the nest to admit of their entrance and exit without damage, and all four were abandoned. It seems that in this case the birds made two mistakes—one in selecting an unsuitable

at least twenty consecutive seasons. The nest was sixty feet up in a large, dead longleaf pine, and a fire sweeping through the grove destroyed both the nest and the old tree.

It may be remembered by our readers that this nest was pictured in the September, 1915 issue of The Guide to Nature, with notes on the breeding of the birds here in the winter of the preceeding year..

The ordinary skunk squirts its characteristic fluid to a distance of from six to ten feet. Occasionally a specially muscular individual has a range of fifteen feet. The principle of "safety first" indicates at least twenty feet as a wise interval between the animal and the observer.

# Photographs of Hawks in Flight. Atlantic, Iowa.

To the Editor:

These hawk pictures must be held above the head to give the proper position. Getting good pictures of birds on the wing is a difficult matter. These three are all of one bird, a marsh hawk,

### A Snowy Owl.

Osage, Iowa.

To the Editor:

THE GUIDE TO NATURE is appreciated and Sunday afternoon while perusing the last number I made up my mind to find the time this week to let the editor know how much I enjoy it. To me



PHOTOGRAPHS OF HAWKS IN FLIGHT.

and one picture shows two exposures of the same bird. These give a good idea of the different positions assumed by a hawk in flight.

Few good pictures of flying birds have appeared in print and to one who has given much effort in getting such pictures it is not surprising. There is considerable difficulty in getting sufficiently near to get a satisfactory picture, to say nothing of the trouble to get proper lighting to permit such short exposures as are necessary. The photo must of necessity be from the shadowed side of the bird since it is higher than the man with the camera. If it were possible to look down upon the bird instead of up to it the problem would be much simpler.

If it were possible to get about half a dozen characteristic positions of each species of bird while on the wing, they would be of great assistance in identification of species with which we might not be fully familiar.

Cordially, Frank C. Pellett.

The growth of the knowledge of organic nature is a long story, full of human interest. Nature has been always the same but the capacity of man as its interpreter has varied.—Locy, "Biology and Its Makers."

the articles on astronomy and Emma Peirce's exquisite verses make the strongest appeal.

If I had the latter's skill, I should try to tell your readers about my first live snowy owl. I had been sent out by our City Federation to gather what I could for the Armenian relief fund. The day for the drive brought a blizzard, but I have braved so many that I did not let this one stand in my way. My district was a mile and a half from my home. I had canvassed all the homes on the south side of the street and had nearly finished the north side, and with head down, bent to the wind, my only object was to get home where it was warm, when my good angel of whose presence I am often conscious told me to look up, and there sailing over the chimney tops was a great white bird with a wing expanse of at least three feet. It seemed to be born out of the throes of the storm. Just for me—almost a vision. It too had hard work to face the gale and as its body tipped I saw the telltale tan feathers.

Slouching down the road came a boy. When we met I asked, "Did you see that white bird?" "Ye-a, I seen it: the front of it looked like an owl," and I replied, "Well, the hind of it looked like an owl."

These birds are rarely seen in Iowa, so I felt well paid for going into the

storm. A week later a white owl was reported to me from a farmhouse twelve miles east of here.

The discussion of the everbearing strawberry is somewhat of a surprise to me, for it is common here. At the nursery we have it until the hard frost puts an end to it. We often pick from sixteen to twenty quarts in one day.

Wishing The Agassiz Association the best year of its history, I am.

Its well wisher,

F. MAY TUTTLE.

### Migrations of North American Birds.

An exceedingly valuable series of articles on "The Migrations of North American Birds" is now being published in Bird-Lore. These tables and dates of appearance and departure of our common species in given localities, cover a long period of observation from many points, and represent years of patient study and hard work.

This painstaking work was begun and for many years carried on by Prof. Wells W. Cooke, of the Biological Survey at Washington, who, up to the time of his death, was probably the foremost authority on bird migration. Dr. Harry Oberholser is now carrying on the studies instituted by Prof. Cooke, and we are glad to note that he will continue this series of articles begun by his predecessor.

### Notes from Ocean County, New Jersey.

Point Pleasant, New Jersey. To the Editor:

We had here, when the peach trees were in bloom, two strange birds which cut into the heart of the blossoms on our largest peach, and the petals fell to the ground. They were discovered before they had injured all the blooms, and driven off. I found from an article on birds with colored plates that they were the females of the purple finch and have obtained the name of "budders" from their habits. Previously a neighbor had told me of seeing a bird new to her, and she had learned from a bird book that it was the male of the purple finch. I have read and heard of new species having appeared in different parts of this state, and the reason given for it is that the prevailing winds, at the time of the spring migration, were so strong that the birds were blown from their usual routes. (Miss) Phebe A. Field.

# Tragedy of the Wren's Nest. Atlantic, Iowa.

To the Editor:

This view illustrates the work of the assassin and robber. I had invited Mr. Wren and his little wife, to occupy the little home. The rent was to be paid in the stir and thrill of their chip-



THE SNAKE ENTERING A WREN HOUSE.

per and song. But alas! when the fledglings came the serpent came also. He heard the baby twitter, climbed the tree, entered the sacred doorway and devoured the nestlings.

The kodak shows the murderous plan. He did not back out, for obvious reasons but filled the bird home with his slimy length. It became necessary to lower the box and remove the roof, before his snakeship could be dispatched. He was of the variety locally known as the "bull snake."

A. D. BECKHART.

The domestic cat probably originated in ancient Egypt, where the native wild cats (Felis libyca) were caught and locked into the national grain houses to catch the rats and mice. This tamed species was carried by Phoenician sailors to various parts of Europe and Asia, and more or less interbred with the several local wild cats. Thus arose the numerous varieties and color markings.



# The Heavens in April.

By Professor Eric Doolittle of the University of Pennsylvania.

POR the first time during the present year our star map shows the bright winter constellations beginning to disappear. The first to go is the brilliant Taurus, though Orion is now very near the ground in the west and the bright Dog Star, Sirius, is so low down that in a few weeks more it

fect outline of the Sickle forms a striking figure in the evening heavens.

Meanwhile the whole eastern half of the heavens is becoming covered with the fainter constellations of summer. The whole of the very long group, Virgo, has now emerged from below the ground, the Balances have appeared.

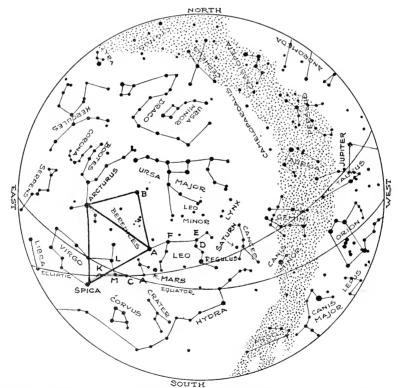


Figure 1. The Constellations at 9 P. M., April 1. (If facing south, hold the map upright. If facing west, hold West below. If facing east, hold East below. If facing north, hold the map inverted.)

will no longer be seen in our evening sky. Gemini is now some hours past the meridian, while Leo, the last of the bright winter train, is exactly on the meridian in the south, where the perand the head of the Serpent is seen, though it will not be until June that this very long, winding constellation will have completely risen. In the south the extended Hydra now reaches almost to Sirius, though the star marking the end of the tail of the Watersnake has not yet risen above the ground.

### The April Stars.

There is no better time of the year than this for the student to become thoroughly acquainted with the beautiful constellation Leo which is now on the meridian in its highest position in the heavens. Even to the naked eye the region from the eastern horizon to the meridian is a most beautiful and interesting sight, and though on the whole the star groups now there are rather faint, there are many bright stars among them. Arcturus and Spica and the star at A. Figure 1, form a nearly equal sided triangle, and this together with the lines joining the star at A and B is known as the Diamond of Virgo.

Even to the naked eye, Spica, Regulus and the star at A are seen to be of a much bluer color than Arcturus, which is golden, while the star at D is usually described as white. This last is a most interesting object, having what is described as a pale lilac companion twenty seconds away which is a beautiful object in a small telescope.

The constellation Leo is of great antiquity, and indeed is prehistoric in its origin. Some believe that Sphinx represents Virgo's head on Leo's body to represent the passage of the sun through these constellations at the time of the rising of the Nile. Pliny stated that the Egyptians worshipped the stars of Leo because the rise of the great river occurred when the sun passed through this constellation. The principal star of this beautiful figure is Regulus, the Ruler, so called because for five thousand years it was believed to rule the heavens. Four thousand years ago its longitude was measured in Babylonia, and twenty centuries later Hipparchus, the Father of Astronomy, from observations of this star and of Spica made the wonderful discovery of Precession of the Equinoxes. At the time of the first observation mentioned Regulus was almost exactly at the summer solstice, so that the sun passed before it at the time of the longest day. Now the sun almost

covers the star, which lies very close to the ecliptic, on the 20th of August; the change of date is owing to the slow motion westward of the Autumnal Equinox (at C, Figure 1) which is known as the Precession of the Equinoxes.

Regulus has a deep blue companion about one hundred and seventy-seven seconds away which is itself double, while the stars at D, E and F are all doubles also. The first is described as the finest double star of the northern sky, the brighter star being of a white and the companion of a lilac color.

Having thus studied the constellation Leo, the observer may next turn to a group of equally great antiquity, the constellation Virgo, which though not quite so high in the heavens is still well above the ground in the southeast. This constellation is filled with objects of interest. The region between the stars H. K. L and A is more crowded with nebulus than any other region of the heavens; more than five hundred have already been found in this little space, many of which can be seen with a small telescope. There are many interesting double stars, of which that at M is composed of two suns revolving about one another in the least circular of all orbits known in double star systems, the time occupied by one revolution being one hundred ninety years.

### The Planets in April.

Mercury will attain its greatest distance east of the sun on April 7, and this will be the most favorable time of the present year to look for this little planet. It will then be well north of the west point of the horizon about three-quarters of an hour after sunset, when we will see the little world shining brightly in the twilight glow. The planet in fact sets more than an hour and one-half after the sun, but it is more difficult to see as it approaches the ground and therefore the observer should begin to look for it as soon as the greatest brightness of the twilight glow has passed. On the evening of April 11 the narrow crescent of the new moon, by this time arrived east of the sun, will draw very near to the planet, though it unfortunately will not pass it until the next morning. It is possible that if the weather is favorable, Mercury can be followed from elongation until this time, when the two objects will form a beautiful figure in the northwestern sky.

Venus reaches its greatest distance west of the sun on April 20 when it will rise three hours before sunrise. Those who are up before dawn have

3 at 7 hrs. 3 min., and to reappear from eclipse at 10 hrs. 21 min., (Eastern Standard Time). Similarly the third satellite will begin to transit the planet's disc at 10 hrs. 0 min., and the second satellite on April 6 at 8 hrs. 52 min. The second satellite will reappear from eclipse on April 8 at 7 hrs. 41 min.; the third will disappear in eclipse on April 16 at 8 hrs. 12 min., and the first may

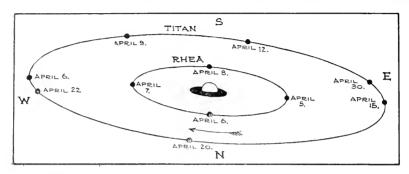


Figure 2. Showing the motion of two of Saturn's moons during the present month. The largest of these is Titan, which is easily visible in a three inch telescope. If the satellites are observed on other dates than those indicated, their positions can be estimated by bearing in mind that Titan performs one revolution in 15 days 23.3 hours and Rhea in 4 days 12.5 hours. The former will reach its greatest eastern distance from Saturn on April 15, 9 hrs. 12 min. A. M.; the latter will reach its greatest eastern elongation on April 5, 4 hrs. 18 min. P. M.

doubtless noticed how very brightly it has been shining in the southeastern heavens. It will not again enter the evening sky until November 24.

Mars is slowly retrograding moving westward), its motion carrying it from Virgo across the borders of Leo into the position shown in Fig-This retrograde motion will cease on April 26 and the planet begin to run rapidly eastward again, though it will not have passed entirely through the long constellation Virgo until next September. It is still in excellent position for observation though its distance from us increases from sixty-four to seventy-six millions of miles during the month, and it will in this time lose about two-thirds of its brightness, though it will still be more than three times as bright as a first magnitude

Jupiter may still be seen in the early evening, though it is fast sinking in the west. It has now arrived well to the east of a line joining the Hyades and the Pleiades, and its eastward motion will for some time be accelerated. It now sets so early that but few of the phenomena of its satellites can be seen, but the first satellite may be seen to disappear behind the planet on April

be seen to reappear from eclipse on April 19 at 8 hrs. 40 min. These are most interesting phenomena to watch in a small telescope.

Saturn is in excellent position for observation in the eastern borders of Cancer in the position shown in Figure 1. Figure 2 shows the path and position of the largest moon, Titan, during the present month; this can be well observed by the possessor of a small telescope of perhaps three inches aper-This remarkable moon is much larger than our own moon, being almost exactly as large as the third moon of Jupiter and almost half as far through as the earth. It occupies fifteen days twenty-three hours in passing once around the planet from which it is about seven hundred and seventyone thousand miles distant. It is the sixth in order of distance from the planet, there being ten satellites altogether, the most distant one being no less than eight million miles away. The extent of the system is thus enormous, far greater than that of any of the smallers worlds, though not so great as that of Jupiter which has one satellite nearly twice as distant as the outermost satellite of Saturn.

### A Double Asteroid.

There has been recently announced the discovery of a new asteroid which has another asteroid or "moonlet" revolving about it. If this is true, it is the only one of the over eight hundred asteroids, or "planetoids," known which has a companion. These little bodies move about the sun, nearly all of them between the orbits of Mars and of Jupiter; they vary in size from four hundred and eighty-eight miles in diameter to but two miles in diameter, which is the estimated size of the smallest one so far found. It is rather surprising that even the smaller ones seem to be approximately spherical in shape; they are veritable little worlds, though they doubtless have but little or no atmosphere or water upon them because they are too small for their gravitational pull to retain gases upon their surface. Our nearest neighbor of all among the heavenly bodies (with the single exception of the moon) is a small asteroid called Eros, about twenty miles in diameter; it was at one time thought to be perhaps a double asteroid, because its light was found to periodically vary when brightest. It is more than three times as bright as when faintest, only two and one-half hours later. The interval between the times of the greatest brightness was found to be about five hours. could be explained by supposing that Eros is a double asteroid and that the two little worlds, almost in contact, eclipse one another at a constant interval. It is now quite certain, however, that there is but one asteroid there and that the little world is nearly round but that one side of it is a much better reflector of sunlight than the other. The variation of its light is caused by its rotation upon its axis. So that the new discovery seems to be unique among the bodies of the solar system.

"The wisdom of God receives small honour from those that stare about and with gross rusticity admire His works: those highly magnify Him, whose judicious inquiry into His acts, and deliberate research into His creations, return the duty of a devout and learned [i.e. intelligent] admiration."--Religio Medici A. D. 1686.

### The Call of Spring.

The call of Spring has resounded, And all things obey its behest; We are going out into the open, Intent on a new beauty-quest.

Each timiest bud by the roadside,
Just bursting its warm winter sheath,
Reveals to whoever will tarry,
The wonders that lay just beneath.

Such crinklings and creasings and flutings, Such intricate folding away Of the leaves, that will now in a twinkling, Be a-wave in the bright April day!

Such silky and delicate tissues,
Such glowing, delectable tints!
Of which the brown buds through the Winter,
Have given no vaguest of hints.

This marvelous Vernal awakening
Should draw us out under the skies;
And then, when the wonder is over,
Let us stay out,—if we would be wise!
—Emma Peirce.

# The Diffusion of Knowledge in War Time.

Incidentally there is a good testimonial as to the value of actively continuing such work as that of The Agassiz Association for the diffusion of knowledge, in the fact that the people of Canada have now, after three years of war, more lyceums and chautauquas than they ever had before the war. They found it absolutely necessary to strengthen the lines of popular education.

The American skunk proves to be so valuable a friend to the farmer and contributor to our fur supply that already more than a dozen states have passed laws to protect the animal.

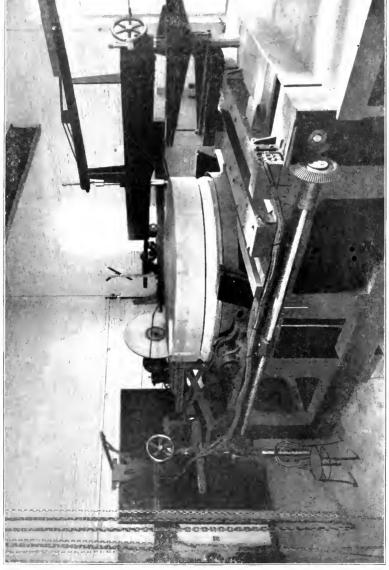
Data from the great meteor which fell over Texas on the evening of October I show that the mysterious body passed at a low angle from northeast to southwest, and ended its course not far from the main bend of the Rio Grande. Over an area one hundred and fifty miles in diameter sounds like thunder were heard from three to five minutes after the light disappeared, and strong enough in some places to rattle windows and dishes. The light was seen from all points within six hundred miles. Several observers describe it as lightning-like and blinding.

# The 100-Inch Telescope at Mount Wilson.

By Jennie B. Lasby, In Popular Astronomy.

After nearly nine years of continuous work the mirror for the 100-inch telescope has been finished and is in its mounting at the summit of Mount Wilson. Since this is the greatest

old town with its huge glass factories is now in ruins and what remains is in the hands of the Germans. The glass was packed just as it came from the mold and shipped to Galveston by



THE TOGANCH DISC FOR THE GREAT REFLECTOR AT THE MOUNT WILSON OBSERVATOR

triumph of the optician's skill it may be of interest to the readers of this magazine to review its history.

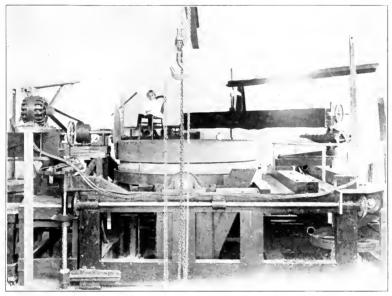
The disc from which the mirror was fashioned was cast, early in 1908, in the factory at St. Gobain, France. This

water and from there transported to the workshops at Pasadena, where a building had been erected especially for the work of grinding and polishing.

The glass in its rough state weighed about five and one-half tons, was 101

inches in diameter and when examined was found to have been cast in three layers. This was due to the fact that there were no crueibles large enough to hold such a mass of molten glass and the pourings into the mould had been made as closely together as possible, but the expert optician could detect flaws that made it seem unwise to attempt the grinding of the disc. Two

rust be deposited and cause scratches. The brushes revolved very slowly and with an even motion, working from the center to the circumference of the disc. After the first cutting had been done and the depression was about an inch and a quarter deep in the center, the grinding was done with even greater care the emery solution was allowed to stand for a time and the liquid



THE MACHINERY USED IN THE ROUGH GRINDING OF THE 100-INCH DISC.

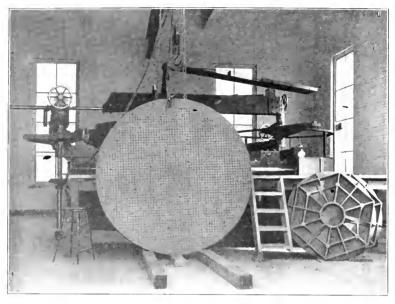
Note the relative sizes of the child and the disc.

more attempts were made at St. Gobian, but word was sent to Pasadena that neither of the later attempts was as successful as the earlier one. Professor Ritchey then made a trip to France, but found that the mechanical obstacles at the factory made it impossible to pour so large a piece of glass from one crucible. Finally it was decided that work should proceed on the disc at Pasadena. It was placed upon the bed-plate of the grinding machine and Mr. W. L. Kinny and Mr. Dalton, to whose skill its final perfection is due, began the preliminary grinding. The surfaces were smoothed until it measured 100 inches in diameter and 13 inches in thickness.

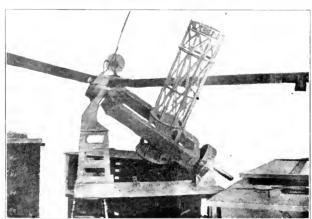
This smoothing process was followed by the actual grinding of the concave surface. This was done by applying flour emery in water with wooden brushes covered with cheesecloth. No metal was allowed to touch the surface of the glass, lest minute particles of siphoned off so that only the very fine particles were allowed to touch the glass.

After the grinding was finished there remained the gigantic task of polishing the surface and this included a series of the most delicate and exhaustive tests. One of the earlier of the tests was to determine the effect of changes of temperature upon the glass. temperature of the shop was lowered to 30° and then in a few days raised to 105°. In spite of the many defects in the structure of the glass, it was found that it was not harmed by this range when the change was gradual. Rapid changes, however, did effect the figure and as the polishing advanced it was found that the heat from the friction made it necessary to discontinue the work for the day after a couple of hours.

While the glass was being polished an elaborate series of experimental tests were made each day to determine the result of the previous days work and to correct the adjustments of the tools. These tests were made with a 60-inch optically plane mirror, and the grinding of this mirror was in itself a huge task and took nearly a year. Over 600 of these tests were made during This was constructed in the form of a revolving plate as large as the glass itself and weighing 1500 pounds. It was so arranged that it would exert an even pressure on the entire surface of the glass and so corrected the tendency to astigmatism.



THE TOOL USED FOR APPLYING THE EMERY FLOUR IN POLISHING THE GREAT MIRROR.



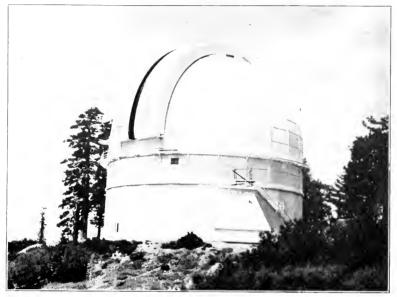
THE WORKING MODEL OF THE MOUNTING OF THE 100-INCH REFLECTOR.

the three years of polishing. One very serious difficulty was encountered early in the polishing. It was found that the curves of concavity were not the same at right angles to each other or, in other words, there was astigmatism in the glass. The .0016 of an inch by which they differed threatened to render the glass useless, but after several months of work the problem was solved by the use of a new kind of tool.

Early in the spring of 1917 the most rigorous tests failed to show any imperfection in the concavity of the surface and the glass was made into a mirror by chemical precipitation of silver from a solution poured over the surface.

The task of transporting the four and one-half tons of glass up a mountain road, where it would be subject to jar and sudden changes of temperature, was no light one. It was lifted from the grinding table by a device such that the stress would be evenly distributed throughout the disc. Then it was lowered into an octagonal box which had been lined with paraffin paper and was sealed at every joint to exclude the dust. Inside the paper was a packing of carded wool and Brussels carpet to protect from heat and jolting.

100 feet high, constructed of metal and has double walls, so that the temperature can be kept as even as possible. The lower 28 feet is stationary and the upper part rotates. Forty huge piers surrounding a still larger central pier supply the foundation. The main pier rests on a bed of sand six feet deep and carries a circular floor 52 feet in diameter. This has around its outer rim a



THE DOME FOR THE 100-INCH REFLECTOR OF THE MOUNT WILSON SOLAR OBSERVATORY.

Only the very edge of the silvered surface touched anything. A corresponding rim of wood, faced with carpet and wool, had been placed inside the box cover and held the mirror rigidly in place when the cover was screwed down. The box was then hermetically sealed and encased in another layer of paraffin paper and clamped between parallel sets of heavy timbers with a steel bolt at the top for lifting. Even this did not seem enough and a cradle of heavy timbers was bolted on the bed of the motor and this was lined with cushions in which were heavy springs so that the box might oscillate easily. A strong canvas covered this and the trip was successfully made to the top of the mountain in one day.

Scarcely less interesting than the mirror itself is the mounting. The larger parts of this were constructed in a shipyard for battleships and the work was delayed very much by the increased activity in ship construction after the beginning of the war. The dome which shelters the telescope is

metal wall nine feet high, to keep drafts from penetrating to the upper part of the dome. The moving parts of the telescope weigh 100 tons and the bulk of this weight is borne by pedestals floating in Mercury.

The driving clock has a weight of one and one-half tons and winds automatically every ten minutes. There is an elaborate system of electric controls, so that the observer can move the telescope any distance in any direction he chooses, rotate the dome and move the platform without leaving his chair

The telescope is fitted with a fine spectrograph and much of the work will probably be done with this instrument. Undubtedly a large amount of work will be done in gathering data for Kapteyn's work on star-streams and to add to our knowledge of the structure and limits of the universe. The huge increase of light-gathering power should help materially in the study of star clusters and nebulae.



### POPULAR MICROSCOPY.

BY FRANCIS ROLT-WHEELER, PH.D., NEW YORK CITY.

[PART OF A LECTURE.]

Microscopy is primarily an art, not a science. Only because of its general usefulness to certain of the sciences, notably biology and petrology has it been mistakenly placed in the scientific class. It is as absured to call microscopy a science as to call normal vision a science, for, in very truth, the entire purpose of microscopy is to extend the range of normal vision. There is no more a science of looking at diatoms than there is a science of looking at Many thousand persons visit a Zoological Park on Sunday and holidays in any of our large cities, but their visit does not make them zoologists: it makes them, to coin a word, -macroscopists.—Many thousand persons may look at a diatom, but that does not make them botanists; it makes them microscopists, because a diatom cannot be seen without a microscope. My first point, then, is that there is no science of microscopy.

As this is a somewhat sweeping statement, I hasten to answer possible objections. Most authorities on microscopy, when setting forth their art, devote more or less time to the question of the principles of microscopic illumination and magnification. This is not microscopy. It is no more microscopy than would be a dessertation on glassmaking or the alloys composing a brass tube. The principles of microscopic magnification appertain to the Science of Optics. One might as well declare that the arrangement of lenses in a telescope was a part of the science of astronomy. I might point out, moreover, that telescopic observation of the sky, per se, is not astronomy.

In answer to my denial that microscopy is a science, it may be advanced that such matters as the proper prepa-

ration and mounting of microscopic specimens requires experience, deftness and technical skill. This is true. So do ivory carving, filigree work, minature painting and lace pillow making. but these are not sciences. It may be suggested that a knowledge of chemistry is necessary to understand such matters as dehydration and staining. and especially such complicated processes as fixing of Actinozoa and Hydrozoa with polypi extended. I reply that chemical knowledge is equally necessary for the manufacture of chewing gum or toilet soap, but one cannot consider such manufacturers as scien-

It may be said—indeed I have heard it said,—that the smaller is the object on the microscope stage, the greater is the amount of science involved. This is sheer nonsense. Microscopy consists in the art of seeing, not in object seen. No one will say that he who regards Volvox is less a microscopist than one who observes non-filterable bacteria through the ultra-microscope. Such a statement would be of an absurdity comparable to the remark that he who studies the planet Jupiter is less of an astronomer than he who studies Jupiter's moons.

It may be objected that the observation of an object is of little value if the observer does not know what he is observing. This I flatly deny. To me, it is rank heresy. I cannot see that a man's delight in mountain scenery is to be set aside as unimportant because he does not know the principles of tectonic stratigraphy and because he does not know a geological fault from a hatrack. Nor am I willing to admit that the country girl who makes a posy of wild flowers is to be frowned upon because she does not understand chlorophyllic processes nor because she calls a flower "love-lies-bleeding" instead of Amarantus Caudatus. I am unwilling to consider as outside the pale of microscopist charity those people who say, on looking at a slide, "How lovely! What is it!"

Microscopy, thus regarded, possesses three sharply marked divisions. It can serve I) as a handmaiden to the sciences by yielding additional material from realms below the range of normal vision; 2) as a provocative of intellectual interest and a spur to education, whether self-education or otherwise, and 3) as an emotional stimulus, satisfying the senses with beauty. The first is a process or research, and not a thing in itself; the second is a process of education and not a thing in itself; the third is pure art and is a thing of itself. Since the first presupposes a line of scientific research that is being followed, it cannot be called "popular"; since the second presupposes a desire to secure general information, it cannot be called popular; since the third inherently satisfies the beholder, it can and should be called "popular." This art, then contains the nexus of popular microscopy.

Let me give a few sharply contrast-The flea of a rat is a ed examples. creature most deserving of study as a part of scientific research because of its possible relation to bubonic plague; the cheese mite is a matter of intelligent curiosity; the moths of the leafmining caterpillars are lovelier than any of the butterflies we can see with the naked eye. The average uninformed person will say "How queer!" to the first, "How horrid!" to the second and "How lovely!" to the third. It is my contention that Popular Microscopy should lay more stress on those things which are lovely.

Let us take an illustration from the vegetable world. The fungus of a plant-disease is of importance to the plant pathologist; the cross section of a pine needle is of value to the botanical beginner; the pollen grain of the hollyhock is a marvel of beauty in itself. It is my contention that Popular Microscopy should exclude the two former types from its domain and amplify in the latter.

Let us take a popular lecture with lantern slides. There are three classes of lantern slides, just as there are three classes of microscope slides; those which are technical, those which are interesting and those which are beautiful. Permit me to assure you, from a long experience, that popular interest depends in no small measure upon the inclusion of a large proportion of slides which may or may not be directly applicable to the subject of the lecture, but which attract popular attention because of their sheer beauty of color.

The sense appeal is always stronger than the brain appeal. Popular Microscopy has been barking up the wrong tree, it has tried to appeal to the public by the brain route.

In order to awaken a wide popular appeal and love for microscopy, it is my first conviction that the public should be taught to regard the microscope as a medium for opening a new world of beauty, not a new world of instruction. To regard the microscope only as an aid to scientific research is equivalent to a declaration that drawing and painting should be confined only to the delineation of anatomical dissections.

Why is there such an outcry against the destruction of Rheims Cathedral? Is it because the public realizes the amazing architectural skill evinced in the balancing of the thrust? Is it because it is a religious edifice? No. It is because it is a thing of beauty. Is the huge membership and work of the Audubon Society dependent on a public knowledge of microscopy? Not a whit. It is because people love birds for the charm of their melody and the beauty of their Presence in the woods and fields.

In order that I might assure myself that I am in the right in saying that microscopy has always been on the wrong track in its efforts to interest the public, I visited one of our largest libraries in the United States and got down from the shelves every book to be found there published on microscopy during the past fifty years. I assure you, less than ten per cent. of any of these volumes dealt with objects that were beautiful in themselves. The sole book which had a slight purview of this need was an amplification of a slide-maker's catalogue. He had found out, through the character of his purchases, the slides which were most in demand. And these demands, be it remembered, came from microscopists of the old school. The best books are the French, next the English, next the American, and the German last.

So far I have been dealing with destructive criticism, and if my arguments so far have proved to you sound, I have shown that there has been a great and woeful lacuna in the manner in which microscopy is presented to the people. I do not want to bring only a torch to destroy and no hammer to build. On the contrary, I am hopeful of being able to start a movement along the right track. I can conceive of no better work than the preparation of microscopic slides selected for their beauty.

It had been my hope, before this lecture, to get in touch with many of your members, secure their consultation and advice, discuss with them this angle of beauty, and make a series of lautern slides to illustrate my meaning. Lack of time, however, has prevented this, and, in consequence, I have drawn up

a rough list.

I have divided a rough list of one hundred slides into twenty-five groups, with four pictorial types in each, avoiding section-making in each and every case. Every specialist in each of these lines would be able to give better examples, without doubt. As a practical result of this talk, I should esteem it a great favor if members interested in any of these fields would write to me what they consider the lovliest microscopic objects in their particular domain, especially those which are easily secured and may be permanently mounted.

Four years of study of the yellow clothes (*Tincola bicelliella*) shows that no known method of moth-proofing cloth is of any practical use. Even fabrics that had been soaked in corrosive sublimate proved a perfectly wholesome food for the young insects. Cedar, tobacco and gasoline are equally ineffective. Camphor and napthalene, however, are promptly fatal in closed places.

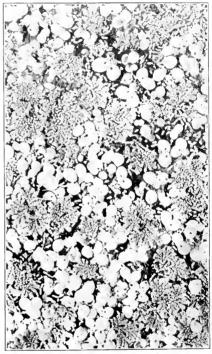
### Somewhere in the Country Side.

All about are the graceful elms,
And on almost every one
Is the pendant nest of an oriole,
A swing in the morning sun.
—Emma Peirce.

# The Simplest and Smallest of Flowering Plants.

BY EDWARD F. BIGELOW, ARCADIA, SOUND BEACH, CONNECTICUT.

Here is a photograph of the simplest and smallest flowering plant in the known world. Complete it is represented by one of the small egg-shaped green bits that in the photograph, owing to the special lighting used, appear



FLOATING PLANTS.

The largest branching colonies are Azolla; the smallest plants are Wolffia; those of the intermediate size are Lemna minor.,

Photograph by Dr. Emmeline Moore. Cut from "The Life of Inland Waters" (Needham and Lloyd) by courtesy of The Comstock Publishing Company, Ithaca, New York.

to be white. They are photographed in comparison with two pinheads maked "x," to show relative size. It will be seen that each plant, even the largest, is not one-quarter the size of the pinhead, and some are not even one-tenth of that size. Yet astonishing as it may seem, this tiny plant that requires a microscope to reveal its details, is a phaenogamous or flowering plant, producing flowers and seeds. The flower is the simplest possible, consisting of only a single stamen with a one-celled, two-valved anther and producing a single seed or, as the botanist would

express it, an orthotropous ovule placed rather obliquely in the cell. Think for a moment what this means. The objects like the tiny granules shown here are not the flowers, but are the plants themselves that produce the flowers and, like the blossoms of all flowering plants, the blossom here is much smaller than the plant itself, and consequently this orthotropous ovule is smaller than the flower. Yet strange as this may seem, botanists have carefully described, in technical language, every detail of the plant, flower, fruit and seed, even to the astonishing statement that this almost invisible orthotropous ovule lies rather obliquely in the cell. Such is a glimpse of the wonderful fairvland world visible to the microscope. The whole plant is hardly apparent to the naked eye, vet a flower bursts from the side of that plant and produces a seed, and the microscope reyeals even the attitude of that seed as it lies in its cell. These specimens were sent to Arc. Add in the middle of September by one of our correspondents in New Jersey, who informs us that they are the first he has ever seen. The plants were placed in a tumbler of water with a few fronds of ordinary Lemna. Some of them have since died but the accompanying photograph was taken of green and vigorous specimens three months after they were received; that is, in the middle of December. The mature plant ranges from seven-tenths to one and five-tenths millimeters in diameter, or from one-fiftieth to oneeighteenth of an inch. Another astonishing fact is that it is well supplied

with breathing pores, the stomata of the botanist, from one to six for each plant. In their native habitat the plants float as minute green grains just below the surface of the water in ponds, pools and shallow lakes, from Ontario to Connecticut and New Jersey, west to Minnesota, to Missouri and south to Louisiana. It is found also in Mexico and South America. It blooms in June and July. We hope that our microscopical botanists will remember these plants, will seek them in likely places, and observe them in the early spring. If possible to capture them in bloom we shall be grateful for specimens. We should like to photograph them in full The plant has no common flower. name, probably because it is itself not common, and is rarely observed by any except the botanist, or by the lover of nature that goes peering into the ponds and pools, often to the wonderment of the spectator, who is more than amazed to see a comparatively well-dressed man, apparently in his right mind, scooping weeds from a ditch. The plant is the Wolffia Columbiana, known to botanists as Wolffia, a simple name, easily remembered, and used in honor of Johann Fried Wolff who in 1801 wrote about the Lemna of the duckweed family to which this belongs.

It is one of the rarest plants in the country. When the botanist finds it, he considers the finding an event to be recorded and for congratulation. It has been discovered in the localities named above, but not often; only once in Connecticut, and perhaps once only



WOLFFL! PLANTS PHOTOGRAPHED WITH PINHEADS (MARKED X) FOR COMPARISON A. TO SIZE.

By Edward F. Bigelow.

in the other places; in a few spots in New Jersey (but anything can be found in New Jersey) and it is so uncommon that it is not mentioned in the one edition of Gray's Manual of Botany.. A learned botanist writing on the subject says:

"The little green discs of the Duckweed [Lemna], with their slender rootlets hanging beneath, reproducing by branching and separation from the parent disc and rarely found blossoming, seem far enough removed from our conception of a flowering plant, but the still more minute Wolfia is the extreme in this direction. The plants consist of minute green globules about a millimeter in diameter, which float just below the surface of the water." It is only rarely and at long intervals found in bloom.

The plant as a whole is one of the most remarkable that we have ever received at ArcAddA. It has attracted much attention from our visitors, many of whom have seen its details under the microscope.

### Blood Corpuscles.

BY PHILLIP O. GRAVELLE, SOUTH ORANGE, NEW JERSEY.

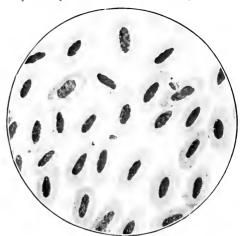
In man the cellular elements of the blood occur in two forms, the red and the white (or colorless) corpuscles. The red corpuscles are circular, biconcave discs while the white are larger, volun-



BLOOD OF NECTURUS.

Magnification one thousand diameters.

tarily vary in form and have well defined nuclei. These corpuscles are shown by the two accompanying photomicrographs of human blood. Unstained they are pale, but if stained by means



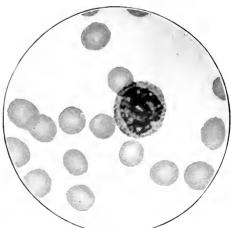
BLOOD OF BIRD.

Magnification one thousand diameters.

of a double stain they can be readily seen under the microscope.

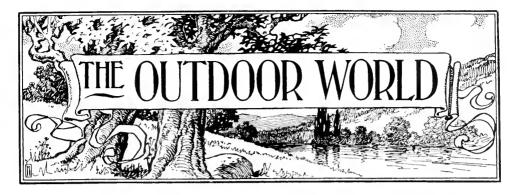
The proportion of white cells to red is one white to about five hundred of the red. The blood corpuscles of birds and cold-blooded animals differ in being oval in shape and having elongated nuclei.

The size of the corpuscles bears no



HUMAN BLOOD. Magnification one thousand diameters.

relation to the size of the animal. The elephant and the humming bird have corpuscles of about the same size, while those of the Proteus are among the largest known, those of the musk deer among the smallest.



### Our Summer Camp for Girls.

BY EDWARD F. BIGELOW, ARCADIA: SOUND BEACH, CONNECTICUT.

The girl in some respects takes to camp life even better than the boy. Perhaps it is a greater treat for a girl because to her, after the ordinary connot only the liberty and the hilarious outdoor living of a camp from the physical point of view, but she is well adapted to the mental phases of living in nearness to nature. I venture to say that the camp has done more for the girl than for the boy, because she



IN THE HEART OF WILDEST NATURE.

ditions in which she lives, especially the girl from the city, camp life comes with sharper contrast, and the greater the change the greater the enjoymen Most boys have a little more freedom than the girl. The average girl enjoys needed it more and can assimilate more.

But there are camps and camps, and a camp for a girl must be chosen with care. It must be one in which she will have the advantages of wholesome living, congenial surroundings, and freedom of the wild under all necessary guards for health and safety. I have investigated a number of camps for



IN THE GORGE.

girls, and have decided that our camp shall be the Tela-Wauket at Roxbury, Vermont. This I believe is ideal. Mr. and Mrs. C. A. Roys devote their time and thought during the entire year to camp work. They have associated with them a corps of assistants of loyalty and whole-hearted cooperation. These assistants and councilors are chosen because of exceptional fitness for the part they are to have in making the camp pleasing and beneficial to the campers and a source of gratification to the parents. Accompanied by my daughter, I shall have charge of the nature work at this camp, and the nature work will not be natural science. it will be nature study. A well-known authority has made a distinction between these terms. Science, he says, considers the subject, while nature study considers the pupil. This nature guidance will consist of a royal good time for every girl. She is going to know nature at first-hand and have a deal of satisfaction in making the acquaintance. Every reader of this magazine knows from the department "The Fun of Seeing Things," that there is a real joy in getting acquainted with nature. There will be more fun to every square inch in seeing things with a seeing eve at the Tela-Wanket Camps than at any other similar place.

There are two camps, one for the juniors, the other for the seniors. Girls from eight to twenty years of age who wish to know why the editor of this magazine is enthusiastically devoted to the study of nature as a mental recreation, as well as a factor in liberal education, should inquire regarding this camp. Full particulars including a beautifully illustrated catalogue may



A SOCIAL TIME AT THE END OF A PERFECT DAY,

be obtained by addressing Mr. and Mrs. C. A. Roys, Directors, 10 Bowdoin Street, Cambridge, Massachusetts. Both camps will open June 20th and Close August 30th. The terms for the season are \$250, or \$130 for onehalf of the season.

### A Primer of Bird-Study.

Mr. Ernest Ingersoll, whose address is 364 West 121st Street, New York City, has published a small pamphlet giving an account of the structure and functions of birds. It seems to the editor to contain a great amount of valu-



"FINDS" BY THE ROADSIDE

The camp spirit is well shown in the following quotation from the Catalogua It was written by Bishop J. L. Spaulding in his "Education and the Highest Life."

"To run, to jump, to ride, to swim. to sit in the shade of trees by flowing waters, to look on orchards blooming. to dream in the silence that lies amid the hills, to feel the solemn loneliness of the deep woods, to follow cattle as they crop the sweet-scented clover, to learn, too, as one knows a mother's face, every change that comes over the heavens from the dewy freshness of the early morn to the restful calm of evening, from the overpowering mystery of the starlit sky to the look with which the moon smiles upon the earth; all this is education of a higher and more real kind than it is possible to receive within the walls of a school. and lacking this, nothing shall have power to develop the faculties of the soul in symmetry and completeness.'

### Twin-flowers.

A rosy cloud of delicate bloom Hung over the leaflets green:-We'd surprised the little twin-flower vine In its transformation scene.

-Emma Peirce.

able material in a small compass. We advise our readers to send fifteen cents to Mr. Ingersoll and receive a copy of this interesting little book, which is not intended for the identification of the birds but for the proper understanding of their structure, adaptability, faculties, nests, purposes, etc. Ingersoll is well known throughout the country as one of our most careful scientific ornithologists. He also is skilled in the popular treatment of the subject and probably has done as much as any other man in popularizing and stimulating the study of birds and mammals. He is the author of "The Life of Mammals," "Wit of the Wild" and "Wild Neighbors."

The book contains not only the name of the bird—that detail is good so far as it goes but it is a superficial part of ornithology, and no real teacher of this beautiful science would be willing to stop there. In a study of plants one is supposed to know every detail of structure, but there are too many people who seem perfectly contented in the study of birds to know only the name. One should know the structure of the bird, its nest and its general habits. Teachers of nature study, scout masters, amateur and professional naturalists will find this a helpful book.

### "Delicious Hypocrites."

[FROM "OUT IN THE OPEN"—A DEPARTMENT OF THE NEWARK (N. J.) EVENING NEWS.]

In classifying the members of the angling fraternity as "delicious hypocrites," Dr. Edward F. Bigelow, the noted naturalist, created not a bit of resentment in the hearts of those who heard him at the meeting of the Newark Bait and Fly Casting Club Tuesday. For he stated a fact that may be said to apply to the majority ofthough not all-anglers. Not a few of us have put our delicious hyprocrisy aside and have come out openly with the declaration that the endeavor to catch fish is only one of the factors that go to make up the delight of our days outdoors. We may not view nature with the eye of the expert, but we find in its many elements a joy and an interest that truly make us more of the naturalist than of the angler.

The fisherman makes a great to-do about going fishing, said Dr. Bigelow. He fusses over his rods, reels, lines and baits and centers all his talk on what he expects to do to the fish, when, as a matter of fact, he goes to enjoy the world outdoors and to get from it the benefit that it is certain to yield in health, interest and recreation.

That is what Out in the Open has been preaching consistently. Its editor recalls a year when he spent ten days on the Esopus during which time he caught exactly three trout—and had a wonderful trip!

Why?

Was it because the stream was beautiful, the mountains magnificent, the camp a real joy, the bold little chipmunks a source of constant entertainment, the wild strawberries luscious, the meadows and fields a glorious green, the heavens, by day and night, a panorama of unlimited interest, even though rain fell from them off and on nearly every day? You bet it was! Those things and the comradeship of the men who shared them made forever dear the memory of that little camp among the tall pines of the creek.

You delicious hyprocrites need feel no shame in your hyprocrisy. You are laying up a store the value of which is beyond weighing in dollars and cents, for, as in Dr. Bigelow's own case, it may be life itself—life and love and memories. Play hard when you play, for our hour outdoors is all too short and what has been today may never be again.

Under the snow and ice the faded pineneedles sleep in the camp site on the Esopus with the dead ashes of yesterday's fires. And one of that trio whose companionship gladdened the days has gone forever and another now may be in the British trenches. But we two who are left have the memory that we played hard with them and worshiped with them, in thought and in word, the glories of nature that were all around us.

# Where to Send Your Boy for the Summer.

We take pleasure in calling attention to the Nonowantuc Camp established by Mr. Edward A. C. Murphy, on the east shore of Mt. Sinai Harbor, on the north coast of Long Island, immediately connected with Long Island Sound and about sixty miles outside of New York City. Full particulars of the camp property, the fields, the pine woods, the grove of locust trees, the splendid view of Long Island Sound with its facilities for boating, canoeing, fishing, etc., may be obtained by writing to Mr. Murphy.

It is not the intention of this notice to go into any detailed advertising of the camp, but to say a word for Mr. Murphy with whom the editor of this magazine is well acquainted. His qualifications are summed up in two statements: he is a thoroughly efficient teacher and he is a royally good fellow. These are the qualifications needed in the manager of a camp for boys. When that has been said, the whole thing has been specified. He must understand boys and be a genial companion for them. He must have an outlook on life from the boy's point of view, although that is not enough. Any boy that is considered a good fellow by his mates has that. The manager must stand head and shoulders intellectually and in wholesome aspirations above the boy. He must uplift and inspire him for life. He must not be a

preacher in words but in actions and in his innate qualifications. Do you known that old Latin epitome, "Omnium vivum cx vivo." You know what that means? I will tell you. From the boy's point of view it means: "We are inspired by the other fellow." The other fellow for the boy, and for the father and mother, is Mr. Edward A. C. Murphy. You can reach him by writing to him at Wabanaki School, Greenwich, Connecticut.

Snails and Spiders.
Springdale, Connecticut.

To the Editor:

The spider of which father spoke to you is a beautiful creature and the snail though not so pretty is just as interesting. Brer Snail deserves all that has been said about slowness. It took mine nearly an hour to go eighteen inches, and deposits of little globules were left on the trail. Were eggs or isn't the snail an egg laying creature? My father says the word is oviparous. Is that right? He savs too that there is some reason why the female spider makes a meal of the father of the family. What is it? We understand why the worker butcher the drones. Maeterlinck makes that clear, but what possesses the spider? Father says that only the female mosquito bites. Is that so? Just one more question. Why call such little things by long Latin names? Why not talk United States?

A. Horace Horton.

The snail does lay eggs. Probably the globules in its slimy trail were glistening air bubbles, but I can give you no definite information without

examining the particles.

In reference to your inquiry as to why the female spider eats the male, I wrote to Professor John Henry Comstock, Ithaca, New York. He says, "Under ordinary circumstances the predaceous instinct in the female spider is very strong; all prey looks alike to her." The spider is a ferocious animal and her appetite predominates at most times. The fact is that nobody knows why. Scorpions eat the males: the praying mantis does the same; other insects are similarly guilty. It is a common occurrence, but no one can tell "why."

Your father is right in saying that

only the female mosquito has the bill, and presents it in a piercing way to the annoyance of human beings and other animals.

I note your inquiry as to why naturalists use Latin names, yet your parents named you Horace after a Roman poet who died eight years before Christ came on earth. Why did not your parents in the colloquialism of the United States call you Hey Boy, Ho Boy, Young Youngster, My Lad, Here You, Laddie, Nickey or Bub? Take one of our common birds, perhaps the one known as the flicker. I have heard it said that this bird has about forty names in as many different parts of the country. Fishermen use the larva of the Corydalis for bait, and when you see some of the nicknames given in the book of entomology as in actual use, you can readily see that if one is going to speak with any sort of precision it is better to use Corydalis than any of the nicknames such as dobsons, crawlers, amly, conniption bugs, clipper, water gampus, goggle goy, bogart, crock, hell devils, flip-flaps, alligators, Ho Jack, snake doctor, dragon and hell-diver, as given in Howard's "The Insect Book." Just as it is better for me to say " I thank you Horace, for your kind interest," then to say, "Thank you," with a lot of nick-names and aliases. Latin names are used because all naturalists in all countries of the world are supposed to be familiar with Latin. If you should speak to a Chinese naturalist of the "flip-flap," the "snake-doctor" or the "goggle goy," he would be lost in wonder at the barbarous sounds that to him would mean nothing. But say, "Corydalis," and if he is an entomologist he will have some comprehension of your meaning. Among naturalists Latin is the universal language.

### Under April Skies.

Spring's shimmering iridescence Is again in the vital air; Again are her rainbow garments Flung over the branches bare.

This is our modern miracle, Surprising us over night; With no words in the language, To do it justice, quite.

An answering note of beauty
Must in our souls arise,
If we would gauge this marvel
Abroad 'neath the April skies.

—Emma Peirce.

### "Children of the Dawn."

AN EDITORIAL ON WABANAKI SCHOOL ROUND HILL ROAD, GREENWICH, CON-NECTICUT, BY DR. FRANK CRANE, IN NEW YORK GLOBE, JANUARY 31, 1048.

Now that Christmas has come and gone it is worth while to ask what is the best gift we can imagine.

I have asked myself that question and have found the answer that satisfies me.

The best gift I can imagine—the one that would do the most good, both now and for years to come—would be to the boys and girls who today are in our tutelage but tomorrow will be in charge of the world.

And the best kind of a child gift is the right kind of a school.

School—that is the biggest little

world in the language.

School! Not the kind I went to nor the kind we find around us, but the ideal school, the happy school, the outdoor school, where the glad forces of childhood come to harmonious development through play.

I have one now in my mind's eye. It is set on a hillside in the woods in Connecticut. A deer path crosses the school yard. A great naturalist comes and tells the children the secrets of nature. A master woodcraftsman lives near and through him the children learn the marvellous adventures of the simple life.

They teach from books in this school, but it is full of life rather than on know-

leđ**o**e

They do not train children to be scholars, doctors, lawyers, mechanics, nor any other pigeonhole occupants, but to be men and women.

The children learn how to use their

bodies and to revere them.

They learn the infinite resources of pleasure that abound in knowing how to do things for themselves with their own hands, and find out facts for themselves with their own minds.

They meet in the council ring and there learn team play, self-discipline, respect for the opinions of others, the sublime art of getting along with folks.

There the teachers are also learners. Teachers and learners are not two hostile camps. They explore the hills hand in hand and do not oppose each other across the desk.

They live reverently, to them the Great Spirit is a daily reality. They don't preach, they realize.

The school is not for bright children nor stupid, but for all children, as God made them; the best in them is brought out, whatever it is.

There they teach the right kind of patriotism, the flower of humanity.

The school is called Wabanaki, which means Children of the Dawn.

If I had millions I would endow such a school, not museums nor libraries nor institutions to perpetuate tradition, but something that would mean life, for in so doing I should lay up my treasure where moth and rust do not corrupt nor thieves break through and steal.

### Those Stringy Bubbles in Ice.

New York City.

To the Editor:

If no one offers a better explanation for the bubble formation in ice described on page 305 of the March number of THE GUIDE TO NATURE, I will venture a suggestion. If there was any decomposing vegetable matter in the aquarium the water was filled to saturation with gas resulting from this decomposition. The water remains saturated with the gas under ordinary temperature, but at the freezing point would dispose of most of it. There is a possibility that in a small aquarium jar congelation of the water occurred in nearly all parts of the jar at a certain moment and the bubbles of gas then escaping were mostly confined in situ although some of them made their way toward the surface, leaving the narrow lines of open space.

Yours truly.

ROBERT T. MORRIS.

The ancient Greek "cat," kept on ships for killing the rats and mice, seems really to have been a martin and not a cat at all.

The "old squaw ducks" of our northern lakes, which are divers and eaters of small fish, are reported to swim to depths beneath the surface exceeding a hundred feet.

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VOL X

MAY, 1918

EDWARD F. BIGELOW, Editor.

Published Monthly N

THE AGASSIZ ASSOCIATION, INC.

ArcAdiA: Sound Beach, Connecticut.

Subscription \$1.4 year: Single Copy too

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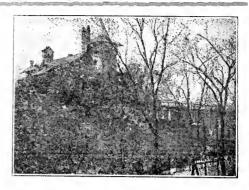
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### Ye Olde Greenwich Inn.

The editor of this magazine wishes to add a word to this advertisement of the Greenwich Inn, located in Sound Beach ("Old Greenwich"). The announcement represents a thoroughly first-class summer hotel at the best of seasides, Sound Beach.

Do you want to know what kind of a place Sound Beach is. Then send for the beautiful illustrated booklet telling of this famous Inn.

It is located on the most beautiful part of Long Island Sound, with modern roads leading to most picturesque country.

It is near ArcAdiA. Come to Sound Beach!

### A Successful Seed and Plant Store.

We take pleasure in calling attention to the Quality Seed Store of Stamford, Connecticut, not because the store is one of our advertisers, but because a magazine devoted to the study of nature in all its forms would be interested in the success of any store devoted to seeds, plants and flowers. The experience of several similar

stores in Stamford has been discouraging, but the success of the Quality store shows that the failures, of which there have been many, were not due to the merchandise nor to the locality. Faulty management may have been a fatal factor. Stamford is a plant loving city. The success of the Quality store demonstrates that, and that success is proof of Mr. G. B. Cannon's good management. The store is ideally located, is well equipped, well stocked, and is controlled by a pleasing, genial, efficient manager. We are always gratified to note the success of any business house that advertises in this magazine, but we are especially pleased when the success is achieved through the aid of that nature to which THE GUIDE TO NATURE is devoted.

We are proud of the class of advertisers represented in The Guide to Nature, and another source of justifiable pride is that seldom in the ten years of the magazine's life has any of its advertisers failed, although many firms have gone down that did not advertise with us! We do not for a moment assert that advertising in this maga-

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GORDON DYE HOSIERY.

zine will make a store nor that the absence of an advertisement will destroy it, but we do say that discerning management enables the merchant to see the value of The Guide to Nature as an advertising medium.

Conveniently Taking Home Ice Cream.

How methods are changing is astonishing. Not long ago when ice cream was to be taken home or delivered from the store, it was thought necessary to carry a huge tub with the ice cream can surrounded by cracked

ice; but nowadays old things have passed away and the method is to call at A. L. Embree's Drug Store, Stamford, Connecticut, and have a brick of ice cream wrapped up, making a package no more clumsy than a box of candy. It may be easily carried for an hour in this manner and in an hour one can go a long distance by train, trolley or automobile.

Another point worthy of mention is the fact that Mr. Embree's cream is genuinely high quality. It ranks with the best fancy creams sold anywhere.

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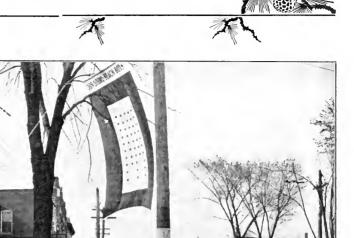
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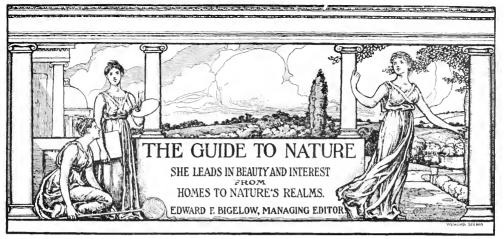
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### BIRDS FOR BRUCE MUSEUM.

## Rowell Collection Loaned and May Be Given Outright Later.

[FROM THE STAMFORD ADVOCATE.]

Bruce Museum of Greenwich has been granted a "long term loan" of a large collection of birds. The collection was made by Dr. Charles E. Rowell, late Mayor of Stamford. The loan is granted by Dr. Rowell's sons, and it is likely that it will become an outright gift, in due course of time.

George P. Rowell, one of the late Mayor's sons, has also given outright his collection of Indian relics.

Stamford people have more than a neighborly interest in Bruce Museum of Natural History and Art, because it was practically developed by the late and lamented Hon, Edwin L. Scoffeld. Under the will of Robert M. Bruce of Greenwich, \$50,000 was set aside to create the Bruce Museum. Mr. Scofield was appointed trustee of the fund. For more than two years before he died, he had been at work on the project. Dr. Edward F. Bigelow, of ArcAdiA: Sound Beach, was consulted by Mr. Scofield, and was his adviser in the matter. During the past five or six months, \$35,000 has been expended along lines suggested by Dr. Bigelow. to improve the museum building and

equip it properly. It is today one of the finest museums of this type to be found in any small town in the land. Many collections have been donated to the museum and many more will be given. About \$15,000 of the original gift remains. This will be used to purchase specimens and to defray other expenses. It is expected, however, that the museum will be maintained and improved chiefly by gifts of money and specimens.

E. C. Converse, W. T. Truesdale and the Selectment of Greenwich are the trustees at present. They are assisted by an advisory board composed of Dr. Bigelow, Frederick A. Hubbard, Neil M. Ladd, Fred A. Springer and Leonard Ochtman. Eventually the museum will be conveyed to the Town of Greenwich.

The Rowell collection was being moved today to the museum under the direction of Mr. Bigelow and John Schaler, a local taxidermist.

Dr. R. R. Hertzberg is another Stamford man who has given a collection of specimens to the museum.

### A Great Local Fair.

When the chicken show arrives in town every poultryman brings out his best biddy and points to her with pride. When the horticulturists have their exhibition the gardeners walk on air in the pride of their achievements, and point to a dahlia or a chrysanthemum, a white and succulent leek or a parsnip two feet long (!) as the best of human achievements. The automobile manufacturers vie with one another in exhibiting the good points of each machine. The spirit of such a fair is commendable. Many a man, woman, boy or girl has become interested in chickens, vegetables, flowers, machinery by attending a fair where these are exhibited.

Some one has called a museum a dead circus. Not so. It is better defined as a perpetual fair where each exhibitor tries to transmit to a fellow being some of his own interest and joy in a particular subject. The Bruce Museum at Greenwich, Connecticut, will be a perpetual inspirational exhibition. Several years ago Mr. Robert M. Bruce, a wealthy philanthropist, made various gifts to the Town of Greenwich. Among these and evidently dear to his heart, was the gift of his own home in which he took so much pride, and with it fifty thousand dollars to refit and adapt it to receive and make permanent an exhibition of local nature, history and art. To carry out his wishes, he selected the eminent lawyer, the late and lamented Honorable Edwin L. Scofield, and four other of his best and most intimate friends.

Among these Trustees there have been a series of changes, owing to two deaths and three resignations. But there is now a new Board full of interest in the subject, with an Advisory Committee of five. The Town of Greenwich owns the land and the home, and will eventually own the museum. The editor of this magazine has philanthropically given his services for almost three years to the Board of Trustees and especially to the Chairman as adviser in carrying out Mr. Bruce's wishes in the establishing of a working museum for this part of the state. Within the last twelve months thirtyfive thousand dollars have been expended in refitting the building under the skilled direction of Mr. Frank Rooke, one of our most accomplished The Library Bureau, architects. famed the world over for the superior quality of its cases, has been setting up cabinets as fine as may be found in any similar place in the world.

The museum will not be a junk shop. Ancient things are desired, but the building will not be a place for any old thing dragged out of the garret. Your contributions will be exhibited, and will be placed in the best possible position to depict the old days in Greenwich and in Connecticut. From the nature point of view, large and commodious is the equipment. There will be no competition with the American Museum of Natural History in New York City. The Museum shall stand first for Greenwich; second for Connecticut, third, for Long Island Sound and the wild country of Connecticut. The building is located between the seashore and the country. In accessibility it could not be better. It is in a commanding position, and only two or three minutes' walk from the Greenwich station and the main line of the trolley cars. Every resident Greenwich, Stamford, Fairfield County, Connecticut, every quarryman, every naturalist, every fisherman, every clam digger, every collector, everybody is cordially invited to contribute, not something that he wants to get out of the house, but something that he regards as the best, the nearest and dearest to his heart, the most expressive, the most valuable or the most inspirational; give it and give gladly.

Agassiz said that a museum or laboratory is a sacred place. It is true. Sacred, indeed, for the great Creator's handiwork, sacred as the place where His Work is pronounced. With this in view, it is not out of place to quote, "The Lord loveth a cheerful giver." The Bruce Museum wants what you want, not what you do not want. If you do not want it, the chances are that nobody else wants it. If you have a fine collection of minerals, gems, birds, curios, antiques, something choice and dear to your heart, something that you would take as much pride in showing as an exhibitor takes at a fair, then that is your best, and you should give it for the good of the Cause and for the good of all. The greater your pride in your beautiful collection, the greater your appreciation, the greater should be your pleasure in placing it where it will do the greatest good to the greatest number.

Perhaps you have not a single relative that would appreciate that collection. The Trustees of this museum will do that. The general public will do that for years to come. Your own appreciation will draw compound in-The Bruce Museum is where you may earn a noble interest. It is a savings institution of the most commendable and trustworthy kind. you have traveled over all the world and have picked up a bronze in one place, a rare coin in another, a choice bit of china somewhere else and natural history specimens from everywhere. do not hesitate to display them in these Library Bureau cases, in a stone, fireproof building with specially fitted cement floors and good attendance. Here they will be safe from thieves, neglect and improper treatment. The museum authorities will care for them for all time.

Information in detail, advice as to gifts, etc., will be given by the editor of this magazine.

### A Flag Composed of Sailors.

Aside from its human interest, the flag is an exceptional example of mathematical photography. It took nearly 10,000 men to form it, and it was planned in strict accordance with the law of perspective. To guide the men while they maneuvered to get the proper formation strips of white tape were laid on the parade ground, forming a pattern that bore no resemblance to a flag but had the mathematical dimensions needed to produce the required effect. Viewed from the camera, placed at a distance of 175 feet from the bottom edge of the flag and at an elevation of 60 feet, the flag was perfect in contour. In reality, however, the line of men forming the right end was 128 feet long while that forming the left end, next to the staff, was 428 feet in length; the line forming the top margin was 203 feet long, while that forming the lower edge was only 73 feet long; the staff was 550 feet long, 31/2 feet wide at the base, and 6 feet wide at the upper end; the ball at the end was formed by an oval, composed of 250 men, that was 237 feet long and only 20 feet wide. It took 1,600 men to form the white stripes, 1,900 the red, 1,800 the stars, and 3,400 the field of blue. The pole and ball took 950 men.

### "Potatriotism is Potato Patriotism."

"The War and You" is an interesting announcement of The Woodcraft League of America Incorporation to the Woodcraft Potato Clubs. The Woodcrafters this coming summer are to devote their energies to raising potatoes under the skilled direction of the chief, Mr. Ernest Thompson Seton, whose home is in Greenwich, Connecticut. Every one should be interested in these potato clubs and we advise all our readers to send to The Woodcraft League of America at 13 West Twenty-ninth Street, New York

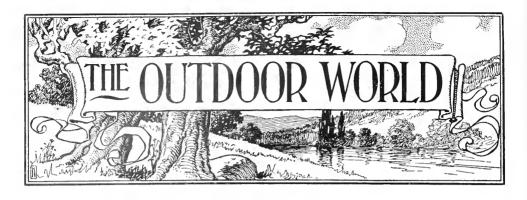
Some call'em murphies; somecall'em goods Some call'em taties; some call'em spuds Some call'em tubers, or hoe fruit clean



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City, for full particulars. There is a catchy bit of inspiration in the appeal of this league to be a potato patriot and their slogan, "Let's hoe our way to victory."

The American Museum's expedition to China secured, among other novelties, a black flying squirrel four feet long, several species of chipmunk new to science and two strange creatures that are intermediate between sheep and goats.



### An Experiment and a Suggestion.

BY ROBERT CUNNINGHAM MILLER, BUT-LER, PENNSYLVANIA.

It is considered quite the thing nowadays to read and discuss a certain little volume published under the title of "Walden." When Henry David Thoreau, pioneer of philosophical naturalists, wrote the book, no one would read it, but scarcely had its misunderstood and unappreciated author been hauled away to the graveyard, when every one began to read and praise the work and pay tardy homage to the genius who had lived and died in the midst of them. An eminent authority has gone so far as to say that we should read "Walden" at least twice every year, in order to maintain a healthful philosophy of living, and keep our intellectual vigor up to par.

However, though we delve in Thoreau and read of his life, and study his works and admire his philosophy, we never do what he himself would have wished. We fail to remember that he was not writing merely to be read and known of men, or to create for us a momentary aesthetic enjoyment. He conducted an experiment which to his mind was successful and in "Walden" he has left us a record of it, so that we

may go and do likewise.

Two years ago in May, I concluded to depart somewhat from my ordinary habits of life, and to make an experiment. I was at the time living in the city, and it was necessary for me to be there at least a part of nearly every day yet in the face of these difficulties, I set out to follow in the footsteps of Thoreau!

After due search, I found a location

which suited my purpose, an old orchard, uncared for and uncultivated, long since given over to the possession of birds and rabbits. Though an ideal spot, it was only a few minutes' walk from the car line, and indeed not so far from the city but that I could walk there readily when occasion required.

It was only a few days until, with the help of a small boy who furnished me with some old tools and still more ancient lumber. I had a shanty erected in the shade of an apple tree and ready for occupancy. At least I considered it ready for occupancy, although there was some room for improvement. There were cracks an inch wide here and there, the roof was far from watertight and there was no door. These defects I intended to remedy one by one, but one by one I concluded to leave them so. I was not long in discovering that the cracks served an iniportant purpose, for through them I could readily observe the birds which frequented the bushes in the rear of the shanty where I had no window. Thus they became almost indispensable, and I could not think of plastering them up. I had a door which I intended to put on hinges but, owing to circumstances which I will mention presently, this intention was never fulfilled, and my establishment was open to all comers day and night. As the rain beat in through the cracks and through the open door, it was of little use to make repairs on the roof; so when it rained, I pulled an oilcloth blanket over my bed and gave scant heed to the weather. Thus, through shiftlessness or design, my life became even more primitive than I had anticipated.

The first night I slept upon a pair

of springs, this being the only relie of civilization I allowed myself. Every time I turned over during the night, the springs creaked mournfully and aroused all the dogs in the neighborhood to an equally mournful response. Next morning the springs were tossed unceremoniously over the hill, and in their place I dragged my intended door, propped it up and thereafter accustomed my bones to its unyielding surface.

I had no other furniture. I kept a

bathing place for the birds, which visited it in great numbers, while the swamp beyond was frequented by several species of water and game birds. Both pond and swamp gave shelter to a variety of frogs, which serenaded me not unpleasantly each evening.

Thus I had at my very elbow, as it were, hillside, meadow, orchard, thicket, pond and marsh, and from each one I reaped a rich harvest. In the branches above my doorway a pair of brown thrashers had their nest. In a hollow



A COMPLETED SHANTY.

few books and papers under the bed that, when the spirit so moved me, I used as a table on which to write. The door that had missed its calling served as bed, chair, table, desk and bookease.

I have seldom seen a situation so ideal for general study of the outdoors. To the right and left of my shanty was a thicket; above me an open field; while below the hill sloped gently from my door for possibly a hundred yards then went down almost perpendicularly to the edge of a small pond. This steep bank was covered with foliage, which provided nesting sites for a great variety of birds. The pond was not a promising rival of "Walden," for it was shallow and turbid, and on the further side merged gradually into an extensive swamp of cat-tails and sedge grass. However, its waters formed a

tree a few steps from my shanty a flicker family had their home. I used to hear the fledglings chattering together or calling noisily for food. I found the nest of the meadow lark and the bluebird and the dove. I waded for hours in the swamp, seeking the nests of the redwing and the marsh wren. In mud and water knee-deep, I patiently sought the elusive, musical Hyla pickeringii, until I actually had the pleasure of seeing him sing, his little throat swelling and pulsing, as though he were trying to swallow a marble and could get no farther with it. wandered by night under the stars, when all was silence, save for the distant crooning of a frog or the sleepy murmur of a bird which I had disturbed by passing too near its perch. In such pursuits as these I forgot the business

of being human, forgot that next day I must become a part of the busy city on the other side of the hill, and in studying the creatures around me I felt as though I too were a part of the outdoors, as wild and free as they.

This, then, was my experiment, I spent the summer in a novel, inexpensive, profitable and thoroughly enjoyable way. No doubt the idea of sleeping on an old door in a leaky cabin will fail to appeal to most people. Possibly if I repeat the experiment I shall do so on a more elaborate and less primitive scale myself. However, the idea might be elaborated at little expense, and I would suggest that, in lieu of an expensive trip to a summer resort, we thus take advantage of the opportunities at home.

Camping in Nearness to Nature.

On my reading table are a number of catalogues of summer camps for boys and girls. That the camping interest is growing speaks well for our American civilization. It is a good thing for people of all ages to leave their homes and crowded cities to go to the wild open by seashore, in the mountains or at a camp by some lakeside in the heart of untamed nature. Even if all that is done is to eat, sleep, run, make fancywork, play tennis and ride horses, a benefit accrues, and there is probably not a camp in the land that is not doing some great good.

But to one who loves wild nature in all her interesting details, as well as in her health giving aspects, there has really been, as we look over the vast extent of nature interests, a conspictious omission from some of these catalogues, evidence that the proprietors are taking the young people not to nature but into nature, that the shell of city life is carried along and that the crust of artificiality and of city pursuits is in no sense broken. But things are not so bad as they were. One camp after another is falling into the line of not the sham going to nature but the

THE ALOHA CAMPS.

real going.

Conspictous among those who are gradually developing a real interest in nature are Mr. and Mrs. E. L. Gulick of the Aloha Camps, of which they have three, one at Pike, New Hamp-

shire, for girls over seventeen; one at Fairlee, Vermont, for girls from fourteen to seventeen; and at The Hive, Ely, Vermont, for the younger girls. The nature study in these camps while moderate is genuine. The editor of this magazine has personal knowledge of the fact that some of the councillors are enthusiastic naturalists and are



A CHIPMUNK, SO WILD IT IS TAME, COMES INTO A TENT AT ALOHA EVERY NOON REST PERIOD.

Photographed by Edward F. Bigelow.

skillful in inspiring others with some of their own interest. Specialists of unquestioned proficiency have been engaged from time to time, and a really wholesome interest in nature is manifested throughout all these camps. Address Mrs. E. L. Gulick, 77 Addington Road, Brookline, Massachusetts.

A SEASHORE CAMP.

From the point of view of the school it is evident that William Gould Vinal, Instructor of Nature Study of the Rhode Island Normal School, Providence, is putting his camp on the right basis as one would naturally infer from his position as nature study instructor.

He is the director of Chequesset, a seashore camp in the heart of the Cape Cod region. One can trust Professor Vinal to put in and to keep in a liberal proportion of nature study, and judging from the bright-eyed college graduates who are councillors, these "strong, sympathetic leaders, full of fun. cultured and refined," have a liberal amount of enthusiasm for outdoor life in general and for natural objects in particular. Address Mr. William G. Vinal, Rhode Island Normal School, Providence, Rhode Island.

#### CAMP ARCADIA IN MAINE.

The camp that seems to the editor of this magazine to be permeated with a desire to be beneficial rather than to make money, and to intend actually to live with Mother Nature and to become acquainted with her rather than merely to have the name of going to visit her, is our namesake, Camp Arcadia at Casco, Maine. This camp in equipment and in spirit is in a class by itself, since it seems to be not a business but a true living in nearness to nature with all the equipments that civilization can supply and all the natural interests and charm obtainable from a picturesque lake, a stately forest and rambling country roads. Mrs. Cleveland has placed the property valued at some twenty-five thousand dollars, in the ownership of her two voung daughters, Dorothy and Phyllis, and she has been fortunate in securing as Camp Mother, Mrs. Cora L. Gleason of the Perkins Institution, Watertown, Massachusetts, whom the inmates of the camp know and affectionately call Mother B. On the staff are several councillors who really love nature and have a fair knowledge of her attractions. With these councillors alone there would be a good deal "doing" in the way of nature study, but Mrs. Cleveland is herself so personally interested in her girls and is so great a lover of outdoor life that she secures the services of those that have made nature study a life work. She is to be congratulated upon securing the services of Dallas Lore Sharp, the eminent writer, biologist and naturalist. There is perhaps no other person in all this country, except Mr. John Burroughs, the Dean of us all, who could more thoroughly stamp genuineness upon

that special nature study than can Mr. Sharp. We are happy to congratulate the members of Arcadia Camp in the bright outlook for the season of 1918. Address Mrs. Eleanor Cleveland, 29 India Street, Boston, Massachusetts.

### TELA-WAUKET CAMPS.

In our April number we noticed the Tela-Wauket Camp at Roxbury, Vermont, one of the more recent comers into the field of true nature study. In general athleticism and in outdoor living this camp has for many years ranked among the highest and best in the country. It is in a marvelously beautiful location and is well equipped. The editor of this magazine will give his personal attention to the nature study there, and he hopes to develop it not only educationally and inspirationally but so that the campers shall see things in accord with the infinite beauty of nature. It is believed after careful investigation of an extensive field and the comparing of many catalogues, that here is a camp where real nature study will accomplish good results. Address Mr. and Mrs. C. A. Roys, Directors, 10 Bowdoin Street, Cambridge, Massachusetts.

### A NATURE STUDY CAMP FOR BOYS.

In our number for April we noticed the Nonowantuc Camp established by Mr. Edward A. C. Murphy. We are confident that Mr. Murphy is not only a good camp manager but a good naturalist. We are sure that nature study in his camp will not be neglected nor will it be relegated to the one-hundredth place; it will not be "the x in the problem." In the summer of 1917 Mr. Murphy had charge of the bird study and the nature councils in the woods and several nature walks, including a genuine investigation of the beautiful lake, at the Aloha Camp. We include this camp in the list of those in which nature study is genuine and earnest. For further particulars address Mr. Edward A. C. Murphy, Wabanaki School, Greenwich, Connecticut.

#### OTHER CAMPS.

It is the spirit of this magazine, voicing the teachings of The Agassiz Association, to give every aid and encouragement to the propaganda of nature study. If any other camp will show that it is entitled even in the feeblest efforts—if really genuine—to

add, to continue or to enlarge its scope of nature interest, this magazine will gladly help in any way in its power. Some camps must sooner or later at least approach a little nearer to nature study or they will fall under the condemnation of public sentiment; they cannot take young people into the realms of nature in name only. These are days of efficiency, of antagonism to the merely artificial; they demand genuine honesty of purpose. If a camp in wild nature is not to do something with nature, then in the opinion of the editor of this magazine and of all other nature lovers it has small excuse for its location; it is not rising to the height of its full privileges; it may as well be situated in the heart of any city.

"Sugar" Bound Boat. Indian Harbor, Greenwich Connecticut.

March 22, 1918.

To the Editor:

While there may have been a scarcity of cane and beet sugar of late, you will notice from the enclosed snapshot



that there has been no scarcity of "Jack Frost Sugar" at Indian Harbor this winter. In fact, so abundant was the supply that you can see the old Oneida in the background completely "sugar" bound.

Joseph D. Curley.

### The Advent of Spring

BY ROBERT SPARKS WALKER, CHATTANOOGA, TENNESSEE.

'T is gone, 't is gone,—old Winter now has passed away,

No more the snowflakes fall when silent skies are gray;

And like a little child from country school set free,

The earth comes laughing forth in gushing jubilee.

The air is ringing with the bluebird's merry note,

The sunbeams flicker on the dandelion's throat;



"THE DARING WATERCRESS GOES WADING BOWN THE

And buttercups and bluets deftly dot the ground,—

A thousand fairy spirits welcome Spring has found!

The daring watercress goes wading down the brook,

Where silver minnows swim and stare in questful look;

The tender grass-blades bend to kiss the waves below,
And buttonballs record the bonny breeze's

And buttonballs record the bonny breeze's blow.

The rippling stream awakes the slumberland with song,

And joyful creatures pass the tuneful peals along,

To birds and bees by pasture-path and and lilied-lane,

And mellow notes echo from distant hills again!

Upon the horizon the vernal tints appear, Elysian scents are they that balmy breezes bear;

And in the midst of gladness that the season brings,

The soul takes up the songs that Nature softly sings!



### The Heavens in May.

By Professor Eric Doolittle of the University of Pennsylvania.

A LREADY the faint summer groups of stars are taking possession of the eastern heavens, while the first of the winter constellations have disappeared in the west. The advancing border of the very large constellation Virgo has passed

above the horizon in the southeast, though more than half of its stars, among which is the fiery red Antares, have not yet entered the evening heavens.

Similarly, the great summer groups or Serpens and Ophiuchus are but

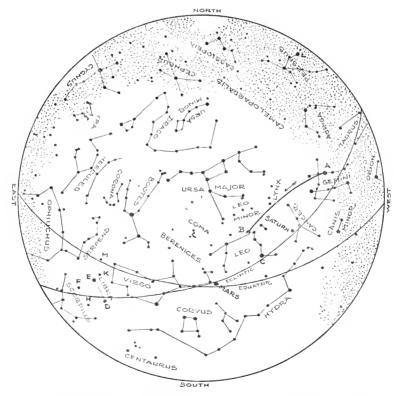


Figure 1. The Constellations at 9 P. M., May 1. (If facing south, hold the map upright. If facing west, hold West below. If facing cast, hold East below. If facing north, hold the map inverted.

the meridian in the south, closely followed by the stars of Libra, while Scorpio, the most striking of all the summer constellations, is mounting

partly risen, while, on the contrary, the very long and winding Water Snake is now entirely above the ground, extending across the whole

southern heavens from Scorpio to the Lesser Dog. Above the Zodiac and bordering it on the north is the train of beautiful constellations from Lyra to Auriga which will well repay study, especially the western part of it, in which there are several fainter and less generally known star groups.

\* \* \* \* \*

The May Stars.

The constellation of the Balance, which closely follows Virgo, is at once recognized by the two bright stars at E and D, although there are fifty-three stars visible without telescopic aid which are included within the borders of this constellation. The four stars D, E, F and H, which form a quadrilateral in Libra, are all of interest. The stars at D and E are seen to be double even in a pair of opera glasses, while that at H also is a double, showing a fine contrast of color, but as the companion is of the ninth magnitude this can only be seen with a small telescope.

The star at E is the only naked eye star in the heavens which has a decidedly greenish color. It is thought that this star has varied in brightness, since two thousand years ago it was described as the brightest star of all in the combined constellation of the Scorpion and the Balance (the Balance was formerly a part of the constellation of the Scorpion) while now Antares, the brightest star of Scorpio, is nearly five times as bright as the star at E. Later the two stars were described as being of equal brightness. No change in brightness has been observed, however, since accurate mea-

sures have become possible.

The star at K is a well-known vari-Two-thirds of its light is cut off every thirty-two hours by the passage of a dark companion between us and it, the companion revolving about the principal star in this time. It is thus exactly similar to the more striking eclipsing variable, Algol, at L. Figure I. If a straight line be imagined drawn from the star at H to that at E and extended a distance about equal to its own length it will end in a striking, compact cluster of faint stars, very much condensed toward the center. About sixty of these faint stars are variables of a certain kind, from

which we may obtain the approximate distance away of this and similar clusters. A short distance above and to the east of this cluster there is an interesting double star, but neither of these objects is well seen except in a telescope of at least three inches aper-

The reader should not fail to examine the beautiful little group of Coma Berenices, now exactly on the meridian, high in the south. On moonless nights, such as we shall have during the first twelve days of the month, the sky may here be seen with an opera glass to be covered with a most delicate, filmy network of stars which, as has been pointed out, if removed a few thousand light years farther away would appear to us as a faint star cluster or even as a nebula. Though so faint many of the separate stars of this constellation were given names two thousand years ago. It was then called Ariadne's Hair (Ariadne's Crown being our Corona), but from 234 B. C. it was known as Berenice's Hair, Berenice being the sister of one of the rulers of Egypt.

There are many interesting double stars here and several star clusters and nebulas which can be found by the help of a star atlas. This small but denselv filled region of the sky will well repay exploration with a small telescope. Having become somewhat familiar with the larger constellations and the brighter objects of the sky, the reader will find it much better to thoroughly explore a small region, such as this, than to turn over the heavens from one object to another. He thus makes the small part of the heavens, as it were, his own, and he becomes familiar with the use and limitations of his instrument. Many most beautiful objects may not be seen until after many evenings' trial, for he will soon learn that the transparency of the air and the "seeing" varies remarkably from night to night. Of course, having minutely examined one region, he may turn to another and thus gradually acquire a detailed knowledge of the face of the heavens as it is revealed in his instrument.

The Pole of the Milky Way is in almost the exact center of Coma Berenices. As this is nearly overhead, the Milky Way is now seen stretching along the horizon from the southeast through the north to the southwest. The winter branch is disappearing and the summer branch is entering our evening sky.

### The New Asteroid.

A remarkable object was discovered last February, which was described

If an asteroid, its path was certainly very unlike that of the other asteroids. Accordingly, it was sometimes referred to as a comet, but it was generally called simply an "object" until its true nature should be discovered.

When a sufficient number of observations had been secured to enable its path to be well determined it was found to be indeed an asteroid, but one

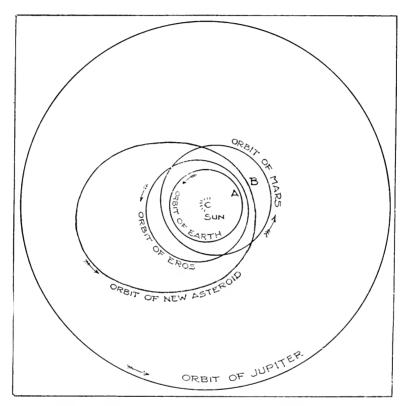


Figure 2. The path of the newly discovered asteroid above the sun,

as an asteroid having a little asteroid, or "moonlet," revolving around it. The little companion was moving so rapidly that it would pass completely around the parent asteroid in a little more than one day. The new asteroid was of only the eleventh magnitude, while its even fainter companion was described as of the fourteenth magnitude.

The new object was discovered in the northern borders of the constellation Gemini, but it was moving very rapidly eastward; in fact, its motion was so rapid that it was doubtful whether it was a true asteroid at all.

moving in a very unusual orbit. The form of this path is shown in Figure It is the least circular of all the asteroid orbits, so that when nearest the sun it is far within the orbit of Mars, and when farthest away it is not very far from the orbit of Jupiter. It may approach within nineteen million miles of the earth. The only other heavenly body which comes so near us as this is another little asteroid named Eros, the moon alone ex-Thus the new body comes much nearer the earth than Venus or any of the other planets of the solar system. When it is at the most remote part of its orbit, however, it will be quite invisible both phothgraphically and in all existing telescopes.

The great importance of the new asteroid lies in the fact that at times it approaches so near us that its absolute distance away in miles can be determined, for it draws so near that when we change our position on the earth it is seen to very appreciably change its apparent place in the sky. From this the distance in miles from the earth to the sun (which is the unit of distance throughout all astronomy) can be determined.

When the new asteroid was discovered it was at the point B of its path: it was thus well past its closest approach to the earth, which occurred just one month earlier. The asteroid passes about its orbit in 4.33 years, so that every four years it reaches the part of its orbit which is nearest the sun. It is not, however, very near the earth except when the earth is near the portion of its path marked A. The next close approach will occur near the beginning of the year 1931, and it is at this time also that the little planet Eros, our nearest visitor of all, will approach us most closely. Soon after this time the distance from the earth to the sun will become known with a far higher accuracy than ever before.

It should be added that though the new asteroid has been many times photographed during the last few weeks and though it has been examined with the largest telescopes, no trace of the faint companion has been detected. It is as yet impossible to account for the announcement of the discovery. The companion may have a real existence (the distance apart of the earth and the object is rapidly increasing) or it may have been an illusion.

The new asteroid has now become excessively faint-of only about the fourteenth magnitude. When discovered it was in the position A, Figure 1, but its rapid eastward motion has now carried it well into Leo to the position B. It is seen so high above the ecliptic because the inclination of the orbit plane to the plane of the ecliptic is nearly nine degrees. It is now moving southward among the stars, however, and will soon pass below the Celestial equator.

### The Planets in May.

Mercury is a morning star throughout the month. It will reach its greatest distance west of the sun on May 24, when it may be seen shining in the northeast for somewhat more than one hour before sunrise. It will again enter the evening sky on June 26.

Venus remains in the morning sky until next November. It is steadily drawing nearer the sun, but it is still a very conspicuous object in morning heavens. It rises almost due east about three and one-half hours before sunrise on May 1, and this time is decreased to two and three-quarter hours by May 31.

Mars is on the meridian in the south in the extreme western border of the constellation Virgo. Its westward motion ceased on April 26, and it is now moving eastward among the stars. Its distance from the earth increases from seventy-six million miles to ninety-six million miles during the present month, and it is but sixthtenths as bright at the end as at the beginning. Even when faintest, however, it is 1.7 times as bright as a first magnitude star.

Jupiter is moving slowly eastward and northward between the Hvades and the Pleiades. It may still be seen in the early evening, though it is bevond the borders of our evening map. It enters the morning sky on June 15,

Saturn is moving quite rapidly eastward and southward through the constellation Cancer. By December 12 its motion will carry it within thirty seconds of the star Regulus (at C, Fig. 1) though it will be about a degree north of this star. The two objects will then form a beautiful figure in the south, but after this date Saturn will begin to move westward again. The reader may remember that some months ago Saturn was nearly in a line with the Twin Stars, while now it is far to the east of this line. Uranus is in the morning heavens in the constellation Aquarius.

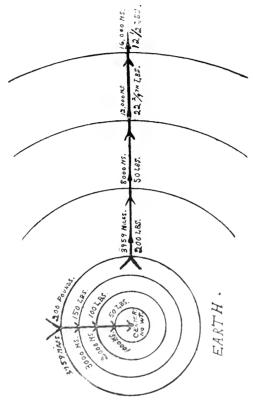
Neptune is in Gemini, sixteen minutes west of Saturn, and six minutes south on May 1, and twenty-two minutes west and seventeen minutes north on May 31. On May 12 it is of the same declination as Saturn, and eigh-

teen minutes west of it.

### How to Reduce One's Weight.

BY CHARLES NEVERS HOLMES, NEWTON,
MASSACHUSETTS.

There are two ways by which the weight of even the most ponderous person upon Earth might be reduced without dieting and without delay. Such a ponderous person, any fat or stout individual, might under certain



conditions lose as much weight as he or she chose, indeed all of his or her weight. And he or she might weigh exactly whatever amount desired—150 pounds or 25 pounds—without having to get rid of even an ounce of flesh. All that would be necessary is a journey, long or short, according to how much weight a person wished to lose. There are two ways by which this reduction might be accomplished, but—alas!—both of these means are at present not available. Nevertheless ,they may become available in the future, so perhaps it will be worth while to describe them.

Briefly, in order to reduce one's weight all that one needs to do is to rise to a sufficient distance above our Earth or to descend a sufficient distance beneath its surface. One begins

to lose weight just as soon as he leaves the terrestrial surface, going up or going down. Of course it is easy to understand that the farther away we get from our Earth the weaker becomes the attraction of gravity between us and our Planet, therefore, since our weight is simply a record of the amount of that gravity, we should weigh less and less according to our distance from the World. At a height of 4000 miles above the terrestrial surface we should weigh only 1/4th of what we do on the surface. And were we able to descend 3000 miles below the terrestrial surface, we should then weigh only a quarter of what we do on the surface, because the distance to our Earth's center being about 4000 miles, there would remain but a quarter of the distance to that center to attract us. That is, instead of being pulled towards the terrestrial center by the gravitational attraction of 4000 miles of our World's bulk, we should. after descending 3000 miles, be pulled downward by only 1000 miles, or 1/4th of 4000 miles. And if we were able to descend to the very center of our Earth. we should lose all of our weight, since at that point there would be nothing further to pull us downward, every atom of the 4000 miles now lying behind and above us. In other words. we should be in a condition of gravitational equilibrum at our Earth's center.

Thus, it is evident that one's weight or the pull of terrestrial gravity upon one's body would become less and less were we to leave our World behind us or to descend to our World's center. In either case, our weight would cease entirely at the Earth's center and practically after we had reached a vast distance from that center.

There are some so ignorant that they do not so much as know they are ignorant—that blissful state of ignorance where to be wise would be rank folly. It is so very easy to be ignorant that it would seem hardly worth while to study and work, toil and scheme, in order to be reckoned wise. The ignorant man who thinks he knows is usually better satisfied with himself than he who is wise enough to know that he doesn't know much.—Erasmus Wilson.



All communications for this department should be sent to the Department Editor, Mr. Harry G. Higbee, 13 Austin Street, Hyde Park, Massachusetts. Items, Articles and photographs in this department not otherwise credited are by this Department Editor.

A Suggestion to Bird-Photographers. EDITORIAL BY WILFRED A. FRENCH, IN PHOTO-ERA.

One of the reasons that excellently illustrated articles on bird-photography are so scarce is because most camerists lack the necessary discrimination, skill and patience. They argue that because the act of photographing individual birds, either free or surrounded by tree-branches, twigs and foliage, presents certain and obvious physical difficulties, the results must be accepted technically satisfactory achieve-Because many of these not ments. particularly creditable photographs have been accepted and published in periodicals devoted to outdoor sports and activities, is no proof of their excellence. It is not even certain that they have met the approval of those whom they were designed to interest. Merely because it was difficult to make, the reader of a sports-magazine is asked to admire an intricate mass of reeds and grasses in which is concealed, somewhere, a mother-bird sitting on its nest. It impresses us rather as a puzzle with the accompanying query, "Find the bird." Or it will be some other bird or creature so photographed with its natural surroundings or camouflage, that it will be extremely difficult for the ordinary eye to distinguish and study. That it is quite possible to procure direct photographs of song-birds, water-fowl and other creatures in a semi-wild state, that are distinct and sharply defined, can be shown by the perusal of past numbers of this magazine. Of course, the camerist eager to make successful pictures of song-birds must possess the necessary temperament for such work and, particularly, the adequate apparatus and accessories A photographic publication is hardly the medium for photographs of subjects in natural history, or any other activity, for which apologies should be made because of technical deficiencies. Moreover, the serious-minded photographer will not rest content until he has achieved that which is within the scope of photographic possibility.

A Song Sparrow Takes a Cold Bath.
BY F. H. VAN HISE, SUMMERLAND, BRITISH COLUMBIA, CANADA.

One evening, during the last week of January, about a half hour after sunset, I saw a song sparrow take a bath. It flew to the edge of the lake, and stood on a stone so that the spray might splash over it. After standing for a few minutes and not getting wet enough, it flew to another stone near the shore, so that nearly every wave submerged it.

Three times a wave larger than usual nearly washed the bird from the stone; considerable fluttering and struggling were needed to help it keep its footing. It then returned to the shore, and again exposed itself to the spray. To that bath the bird devoted fifteen minutes. The temperature of the air was thirty-seven degrees; that of the lake was thirty six degrees.

(The Okanagan Lake has been frozen over only once in twenty-three years.)

Nature's work is all of it good, all of it purposeful, all of it wonderful, all of it beautiful. We like or dislike certain things which may be a way of expressing our prejudice or our limitation; but the work is always perfect of its kind irrespective of human appreciation.—John C. Van Dyke in "The Desert."

## The Only Mountain Plover in New England.

We are indebted to the Boston Society of Natural History for the use of the accompanying cut of a mounted plover recently acquired by that so-



"ONLY MOUNTAIN PLOVER KNOWN TO HAVE BEEN TAKEN IN NEW ENGLAND,"

ciety. Mr. Glover M. Allen, the Secretary, writes as follows:

"The cut of the plover represents the mountain plover (Podasocys montanus) lately acquired by this society for its mounted collection of the birds of New England. It was killed at North Beach, Chatham, Massachusetts, in October, 1916, and fortunately came into the possesion of one that recognized it as something unusual. It is the only mountain plover known to have been taken in New England. Its normal breeding range is in the far West, from Montana to northern New Mexico. It winters from northern California to central Mexico."

The expenses of the New York Zoological Park and the Aquarium amount to about seven cents for each visitor.

### Enormous Number of Robins

The immense concourses of passenger pigeons, remembered by many now living and so graphically described by Wilson, Audubon, and other early ornithologists, are common knowledge.

But that the robins of America are today far more numerous than the passenger pigeons ever were, and that many other species outnumber them also—perhaps three one—is not generally appreciated. The gregariousness of the pigeons, causing them to unite in a few great flocks, made the number much more manifest than do the scattered small bands and individuals of other birds. Yet when we reflect that robins nest over an area extending at its farthest limits from Mexico to the Arctic ocean and from the Atlantic to the Pacific, and that in much of this vast territory they are fairly crowded, it is easy to conjecture what an immeasurable army they would make if gathered into one flock.--Henry Oldvs in "Bird-Lore."

#### Truth.

BY C. R. PIETY, SCOTTSBURG, INDIANA.

Iconoclast am I:
The icons I delight to kill;
The ichor I rejoice to spill;
With pride I view the mangled mess,
And scorn the utter helplessness
Of spurious gods that lie,

And die

Mankind I liberate;
Wizards and witches I enthrall;
The ghosts and goblins, elves and all
The apparitions, good or bad,
I strip of every charm they had,
And slay at Reason's gate—

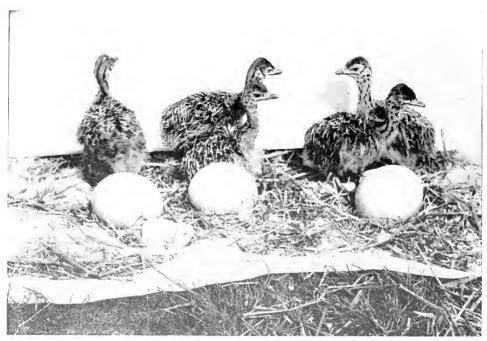
Just fate,

Heaven and earth are mine;
And Nature knows no Zodiac
With spell o'er garden, flock, or pack;
No lucky or unlucky day;
But only an eternal sway
Of wholesome laws—divine,
And mine.

### Hatch Ostrich Eggs in Incubator.

What no less an authority than Cy De Vry of the Lincoln Park Zoo, Chicago, calls the first successful attempt to incubate the eggs of captive ostriches is recorded at the poultry division of the University of Wisconsin, where five of the long-legged desert birds for plumes shattered, it is likely that the young ostriches will be sent back to their place in the zoo.—Courtesy of "Our Dumb Animals."

The volume of nature is the book of knowledge, and he becomes most wise who makes the most judicious selection.—Goldsmith.



HEALTHY YOUNG OSTRICHES HATCHED IN INCUBATOR.

were hatched in an ordinary hot air incubator.

After forty-two days' incubation, these five husky birds kicked out of their pewter-like shells and began to hunt something to eat. The eggs were given to the university by managers of the Madison City Zoo, and that they developed into sturdy young ostriches was fully as big a surprise to the poultrymen as to the natural history authorities. The parents of the young ostriches are kept closely confined in a small enclosure, a fact which made unlikely the artificial incubation of their eggs.

The university poultrymen have not decided what to do with their feathered prodigies, which on being hatched were nearly as large as a Plymouth Rock hen. With chicken feed high and the market

### An Invitation.

BY DON C. SEITZ, COS COB, CONNECTICUT,

O come with me To the depths of the sea Where the oysters stew And the loud sea-mew Waileth so piteously!

Where the Lobsters green In their armour preen And polish their shapely claws While the cod-fish pause To stare at their emerald sheen.

Here the slim eel swims
And divides with the whims
The honors down below;
Where the shark's teeth show
And the cuttle his shadow dims.

Meet here the whale With his threshing tail Where the star-fish twinkles And rounds up the wrinkles Deep down in the ocean vale!



## Studying by the Light of the Glowworm.

In propaganda for Chinese farmers as teachers, Mr. Warner M. Van Norden, 62 South Street, New York City, as an argument in behalf of diligent study by farmer boys at home, made

this astonishing statement:

"The story of a young Chinese has become almost classic. This young man, working on his father's farm all day and not wishing to put his father to the expense of buying oil that he might study in the evening, would stop on his way home from the fields each evening and collect a bag full of glowworms by the light of which he would study late into the night."

We have heard of great men who studied in their boyhood under difficulties, using the glowing pine knot by the fireplace and other simple and primitive methods, but this statement of the Chinese young man studying by such dull light relegates other cited examples into the shade. The question naturally arises, "Why put the glowworms in a bag? Would it not have been better to put them in a bottle?" The light might then have passed out to illumine the studies of that economical and industrious young man that at first seemed to me must be a Chinese myth, because I have occasionally tried to ascertain the truth or falsity of similar stories about reading with our American lightning bugs, as it is really possible to do, if strained gazing to see the print indistinctly or occasionally to catch a plainer view may be called reading. The light of lightning bugs is stronger than that of the larvae or głowworms. Several vears ago while editing a reply to a child in regard to the light of the firefly, I thought it would be interesting to say that I had actually read the proof by

the light of fireflies. So I collected a number, put them in a bottle and held them close to the paper. I did see the proof when several of the flies together occasionally flashed their light and, with a little touch of fancy added, I could claim that I read the proof, because I could now and then catch a glimpse of a word, but nothing more. If it is impossible to read by the aid of fireflies in a bottle, what could be seen with glowworms in a bag!

Strange, however, as the Chinese story is, it seems well vouched for by those versed in Chinese lore and customs. After considerable and extended correspondence, we find that the story of the industrious Chinese youth who studied by the light of the glowworms, though a very old one, has an element of probability. It has been handed down from father to son and is still told when the family gathers around the glowing brazier, as a sort of equivalent to our stories of a youth studying at the fireplace. It seems, however, that the bag was made of rice paper and was probably very thin. Being pure white it would transmit a fair light. It is not probable that the Chinese had bottles in the days when this energetic boy was living.

The Bureau of Entomology at Washington agrees with most of us in thinking that this glowworm story is improbable and yet should not be ridiculed. There are a few facts that take the story out of the realm of fable or myth and put it within the scope of

definite scientific knowledge.

This brings up the question of the brightness of other glowworms. Mr. H. S. Barber of the Bureau at Washington says that one night, while in Guatemala, he read nearly a column of ordinary newspaper print, without eyestrain, by the light of a single fire-

fly of the species which is there called "Cucuyo." This has a steady light, which he held two inches from the paper. He says further that in the Orient there are undetermined glowworms of considerable brilliancy that may be wingless females, and have a much brighter light than the flying males. In such case the female is usually constantly and brilliantly luminous while the male shows only a dim light or none. "As the habitat of such species is usually very circumscribed it would not be at all strange that their luminosity should be known only to the peasant or farmer class whose natural history lore, true or false, is too seldom recorded."

In a somewhat extended correspondence Mr. Van Norden writes as follows:

"Again referring to your inquiry regarding the glowworm story, I have found it repeated in 'Social Life of the Chinese' by Justice Doolittle, page 359, published in London by Sampson, Low Sons & Marston, 1868.

"It seems the young man's name was Che yin. He lived in the Dynasty of Tsyn, 265—4918 A. D. Dr. Doolittle's story states that the worms were in a gauze bag. He adds that Che yin became President of one of the six boards."

In another letter he says: "I have just heard of another book which contains the story of the glowworms. I have put in application for it to a library and as soon as I receive it, I shall write you again, quoting you the page on which the story appears."

on which the story appears."

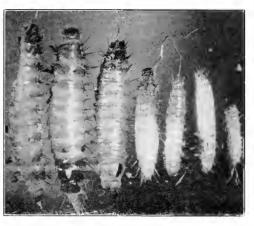
A letter to the Chinese embassy in Washington has not been answered, but request has been made that correspondence be taken up with some Chinese entomologist. We shall be glad if any of our readers can throw further light on the subject, which at present seems rather dim in the distant past and in the somewhat indefinite form of the information.

The Welch National Museum has just acquired a natural history collection in which the swallow-tail butterflies alone number over three thousand specimens and the beetles more than forty thousand.

Five Years of Starvation of Larvae.

BY J. E. WODSEDALEK, UNIVERSITY OF
IDAHO, MOSCOW, IDAHO.

The specimens concerned are the larvæ of *Trogoderma tarsale*, a small beetle well known as a museum pest. The last of a large number of specimens lived, without a particle to eat, for the surprisingly long period of five years,



LARVAE IN VARIOUS STAGES OF GROWTH.

one month and twenty-nine days or, to be more specific, from October 28, 1911, to December 25, 1916, a period of 1,884 days. The case is decidedly outstanding, as to my knowledge, nothing similar has ever been recorded as a result of starvation experiments with other animals. It is very probable that under otherwise non-disturbing conditions the starving larvae would have lived for even a longer period. The specimens concerned in this article had undergone considerable disturbance after the first two years of starvation, since many of the larvae made the trip between Idaho and Wisconsin with me three or four times, and several of them covered the distance five times. The trips one way varied in duration from four to seven days. There is no doubt but that the jarring of the train had accelerated the metabolism of the larvae. This fact was evinced by the moulting of practically every individual toward the end of the trip or within a few days after it, and by the decided decrease in the dimensions of the larvae immediately following such a moult. Larvae placed under starvation shortly after my arrival in Idaho in the summer of 1913, which have not been so disturbed, show indications of even

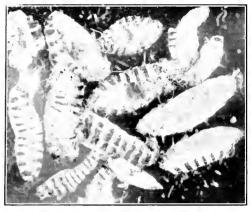
greater tenacity than is here recorded.

It will not be out of place here to mention how the starvation experiments with this particular species which proved to be of such unusual interest came about. While a graduate student at the University of Wisconsin the writer got into a dispute concerning the classification of the larvae. To prove his point he decided to grow some of the specimens to maturity and thus obliterate the uncertainty of identification. A number of the largest larvae available were placed in glass dishes together with some food material. Not having plenty of the favorite food material at hand at the time, several specimens were placed in other dishes without food and set aside in a separate drawer with the intention of providing for them later. However, these were neglected until the opening of school the following September when the writer accidently discovered them in their secluded place. Much to his surprise all of the specimens were alive, in spite of the fact that they had remained there for five months without a thing to eat. It was also noticed that the larvae had decreased in size. This observation was further substantiated by the gradual decrease in size of the various cast-off skins, which this species is not known to attack. interesting information later led to experimental work on the longevity of the larvae, without food, on a large scale.

A number of specimens varying in size from newly hatched to practically full-grown larvae were placed in individual sterilized vials for the purpose of ascertaining the period of time that they could live without food. Even the newly hatched specimens showed an amazing tenacity by living over four months without ever having eaten at Some of the one-fourth grown specimens lived for fourteen months; those about one-half grown lived almost three years; those three-fourths grown lived four years; and most of the largest specimens lived over four years, several of them over four and a half years, and one five years and seven days; while the last one died after five years, one month and twenty-nine days of starvation.

One of the most interesting phases

of these experiments is the gradual decrease in size of the individual specimens. Many of the largest larvae which were about 8 mm, in length dwindled down to practically the hatching length of 1 mm, before dying, and practically all of the specimens which were below 7 mm, at the beginning of the experiment dwindled down to the



CAST SKINS OF FASTING LARVAE.

same dimensions. Many of the larvae of 2 and 3 mm, were reduced to somewhat below the hatching length, and practically all of the newly hatched specimens fell down to about three-fourths of their original length. Speaking in terms of reduction in size, it is astonishing to note that some of the largest larvae have been reduced to about 1/600 of their maximum larval mass.

Another, and even more interesting phenomenon, is the fact that when the starved specimens almost reach the smallest size possible and are then given plenty of food, they will again begin growing in size. A number of the larvae which were half grown when placed under starvation for the first time, have through alternating periods of "feasting and fasting" attained that size three times and are now on the way to their fourth "childhood"; and even some of the large specimens have started dwindling down to their third "childhood" after having twice attained the practically maximum larval size.

Occasionally these larvae are found in large numbers in insect, seed and drug collections, and naturally destroyed as soon as discovered. The writer would appreciate any amount of this living material that the reader may happen to find if he has no use for it himself. The larvae, pupae or living adults of other dermestids are equally desirable for the purpose of comparative studies. In response to a recent circular letter many men have already sent me some valuable material. The names of the donators will appear in the forthcoming detailed publication of this extensive and of necessity prolonged investigation.

The problem has now attained enormous proportions and involves the use of thousands of specimens. Many normal larvae of different sizes, as well as many specimens in the different periods of starvation have been sectioned during the past few years, and comparative cytological studies of the various structures of the organisms are being made. Physiological studies with special reference to metabolic water and excretion science have also been started.

### A Spring Song.

BY EDNA L. BOGUE, MONTCLAIR, NEW JERSEY.

Lightly tiptoes Springtime

Breathing, gently o'er the hillsides green-

Song birds in sweet notes are singing, With their leaders northward winging In plumage fair and gay.

Each a joyous message bringing,

This rapturous day.

Tremble, waterfalls with laughter,—
Woodland sprites—'tis Spring you're after,
Such romping play!

## The Hornets' Nest with Curious Extension.

On page 26 of The Guide to Nature for June, 1917, we published a letter from Mr. Earl A. Newhall, Shelburne, Massachusetts, accompanied by an illustration of a beaked nest of a hornet. We also published a statement from the Bureau of Entomology, Washington, D. C., to the effect that this kind of hornets' nest is new. We have received another specimen from Mrs. Hattie Hull of Williamsport, Pennsylvania. She writes:

"In the June number is a photograph of a hornets' nest similar to the one that I cut from our sweet cherry tree about three years ago. If you have any place for such curiosities and desire

this one I will gladly send it to you. I do not know the kind of hornets that built it, but I saw several similar nests started that summer. The latter were in the woods, while the one I have was in town.'

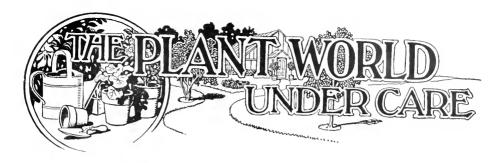
We hope our readers in the vicinity



WANTED: HORNET'S NEST OF THIS SHAPE.

of Williamsport and elsewhere will make careful search for specimens of the hornets that build this peculiar kind of nest. We also want to know whether this nest is full sized or continues to be made larger.

The study of entomology is one of the most fascinating of pursuits. It takes its votaries into the treasure-houses of Nature, and explains some of the wonderful series of links which form the great chain of creation. It lays open before us another world, of which we have been hitherto unconscious, and shows us that the timiest insect, so small perhaps that the unaided eye can scarcely see it, has its work to do in the world, and does it.—Rev. J. G. Wood.



### How Garden Plants Come Up.

BY HERBERT W. FAULKNER, WASHINGTON, CONNECTICUT.

For the benefit of boys and girls that are planting war gardens, let me note a few of my observations and some of the details that I had to master in learning the art of gardening.

To keep my garden clean. I needed to know the difference between sprouting plants and young weeds and, since the first leaves appearing above ground which emerges a single green leaf, at first tightly twisted but rapidly unfolding into a grass-like blade, but readily distinguishable from grass by its width and roundish tip.

The following plants send up hooked stems and afterward spread out two cotyledons: beets and chard, long and narrow, colored red on the under surface; leeks and onions, slender, round stem, splitting into two very narrow cotyledons; carrots, tomatoes, parsnips, all having two narrow cotyledons, but



(the cotyledons) usually differ from the leaves of the older plant, I had to learn what to look for, so as to uproot the intruders and leave the welcome guests.

Seedlings of different families "come up" in different ways. Cabbages, cauliflowers, turnips and radishes send up two leaves closely pressed together. These open into winged or notched leaves as shown in the sketch.

Beans and peas first appear as a green hook or loop; then the entire seed rises from the ground and spliting open forms two thick wings on the stem, conveying the impression that the plant is upside down. Above these seeds appear two leaves shaped like pointed shields, and later the true leaves, three-parted and spear-shaped.

Corn pricks through the ground as a sharp, white tooth or horn, out of

increasing in width in the order named. Parsnips usually push the seed cover up with the plant and cast it off whilst unfolding.

Potatoes, which sprout from sliced tubers, send up succulent, green leaves of the usual type.

Since weed seeds usually sprout more quickly than desirable seeds, by waiting for the latter to appear we are in danger of letting the former "get ahead" of us. Gardeners avoid this difficulty by planting a few quickly growing seeds, such as radishes or lettuce, sparsely in the rows of other vegetables. These, germinating quickly, sketch out the planted rows in lines of green, and thus the spaces between may be cultivated with safety. We know that "worry kills," so only by

constantly worrying the weeds can we

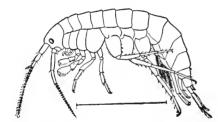
hope to kill them.



### The Animal World in a Handful of Algae.

By Frank Collins Baker Curator, Museum of Natural History, University of Illinois, Urbana, Illinois.

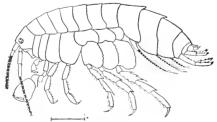
WHEN the warm spring days come and the ice leaves the ponds and streams and the air becomes vibrant with the vernal resurrection of life, our thoughts turn to the great world which has lain bur-



THE GAMMARUS IS VERY INTERESTING.

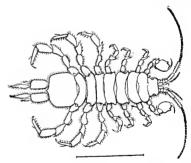
ied beneath ice and snow for so many months. We long to sally forth with collecting apparatus and gather the familiar forms of life that captivated us ere winter set his seal upon the earth and turned it brown and desolate.

Of the great out of doors no part quite equals the ponds, streams, and ditches for interest. It has been said



THE HYALELLA MAKES ONE LAUGH.

by an eminent American biologist that a body of water, as a pond or lake, is a microcosm which is isolated in great part from the rest of the world and in which the great forces of Nature are working out the evolution of the creatures that inhabit it. The life of the terrestrial world might be suddenly brought to an end without greatly affecting the life of this small world. Such a microcosm is inhabited by a host of animals of various sizes and variety, though mostly minute, which in the aggregate represent all of the higher groups of the animal kingdom. Here are the hunters and the hunted, the former practising every art and trick known to predaceous animals for obtaining their prey. The great majority of the inhabitants of this small world, however, are vegetarians feeding upon



THE ASSELLUS MAKES A COMMOTION.

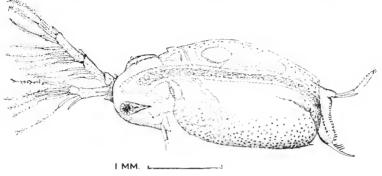
the plants which thrive abundantly in such a habitat.

Without plant life, animal life would be impossible. As we observe a body of fresh water filled with weeds, pond scums, filamentous algae, and higher plants we are led to wonder if this mass of living substance is of any value. If we examine some of this material we will find it filled with many small animals whose bodies are the same color as the plant; and it is at once realized that these small animals are eating the algae and by so doing are converting it into animal food which the carni-

vorous animals may utilize. In this manner food material is being prepared that the larger animals, fish, turtles, amphibians, etc., may feed upon.

In no way can this fact of the pond being a minature world be better demonstrated than by collecting a handful of filamentous algae, of the genera the algæ or run clumsily about on the bottom.

As we look closer into the basin holding our handful of algae we may observe many small dots or specks rapidly moving through the water. Under the microscope these are seen to be minute crustaceans known as water fleas (Cla-

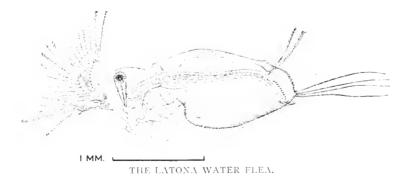


THE SIDA WATER FLEA.

Cladophora, (Edogonium, or Spirogyra, and placing it in a basin of water. It is soon seen to be filled with an abundance of animal life consisting of snails, leeches, crustaceans, worms, insects, and other forms.

The first objects to attract our attention are the scuds or Amphipods which dart about in an effort to find concealment. These little crustaceans are usually represented by *Gammarus* and *Hyalcila*, the latter being the most abundant of these crustaceans. Related to the scuds, and almost as abundant,

docera). These creatures may be known by the large compound eye and by the peculiar branched swimming organ, the antennæ. The antennæ vary much in form and size and are largely used in classifying the different species. The shell which encases these tiny creatures is usually so transparent that the internal organs of the body may be plainly seen and studied. Thus the digestive and reproductive systems may be seen to occupy the greater portion of the internal cavity and the eggs may frequently be seen in the upper part of the body which is modi-

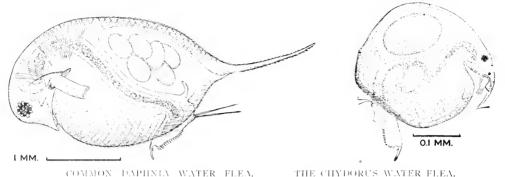


are the sowbugs or Isopods, of which Asellus communis is the most common species. These animals resemble and are related to the pillbugs or sowbugs that are often so abundant under boards in damp places. Unlike the scuds, the sowbugs crawl slowly over

fied to form a brood chamber. A common species of water flea, about 3 mm. in length is known as *Sida crystallina*. Another, smaller, is *Latona setifera*. In these animals the antennæ are much branched and are extended directly ahead of the animal. In *Daplmia* the

posterior part of the body is drawn out into a long spine. In *Bosmina* the body is peculiarly humped, the antennæ are reduced in size and the head is prolonged into a long rostrum which resembles an elephant's trunk. This rostrum varies in the different species and forms, being

Together with the nymphs of dragonflies and certain of the Hemiptera or bugs they form the great body of predatory animals that are ever on the watch for unwary creatures of herbivorous habits. These water-mites are attractive little animals, both as objects for the



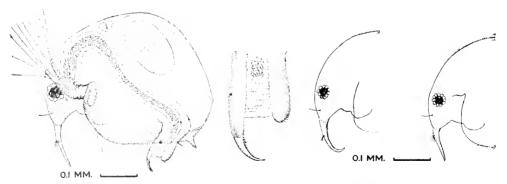
almost straight to considerably curved. In Chydorus sphericue the body is al-

most round and there is a long rostrum. These are but a few examples of the large number of species and varieties of these little water fleas. Only a comparatively few species live on the bottom among algre and other plant life. The great majority swim about in the open water forming a considerable part of the plankton. These animals are economically of great value furnishing food for

microscope and as inhabitants of the aquarium. Many species occur in fresh water, usually associated with bottom vegetation in shallow water. One group in particular (Unionicola) is parasitic in

in particular (Unionicola) is parasitic in fresh water mussels, and many species of other groups in the larval and pupal state attach themselves to aquatic ani-

In point of numbers the most abundant animals in our algal world are the oligochæte worms and the larvæ of certain



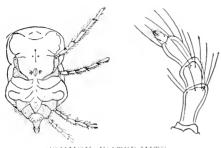
BOSMINA WATER FLEA WITH MAGNIFICATION OF REAR AND TWO STYLES OF HEADS.

nearly all small and young fish and for several adult fish of high economic value.

Among the most conspicuous animals in our algal mass are the little watermites or Hydrachnids. These conspicuously colored creatures—red, brown, blue—actively wander over the plant life hunting for their prey which may be larval insects, crustaceans, or worms.

flies, of the genus Chironomus. These animals are rendered quite inconspicuous by their color which is of the same delicate pea-green as the filamentous algæ, and is caused by the immense amount of algæ they have eaten. So rapidly do some of these oligochæte worms multiply by budding (every two or three days) that in a short time they are so numerous

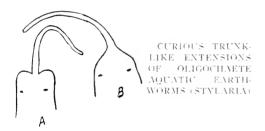
that the algae becomes a mass of worms. It is thought that these worms are in part responsible for the disappearance of the large masses of algæ and other low plants in the fall. One of the commonest



COMMON WATER-MITE. With palpus (at right).

of these worms is Stylaria which is easily known by its peculiar proboscis at the front end of the body.

Of all the species of aquatic animals that are found in algae rone are more numerous or of greater value economically than the minute larvæ of certain



flies called midges (Chironomus). These are jointed, worm-like creatures, with tube-like gills attached to the posterior part of the body. They are herbivorous animals eating great quantities of the algæ and furnishing in turn food material for a number of fish. These larvæ mass of vegetation. These are Planaria or Turbellarian worms. They are upwards of half an inch in length, spotted with purplish or brownish, and the head is provided with an ear-like expansion on each side. These animals are predatory and feed usually at night. Looking much like the planarians but much larger and made up of many segments or rings are the leeches (Hirudinea) a few small species of which are usually found in algae. These are also predatory animals, hunting and consuming the smaller herbiborous creatures living in the algal Some leeches, as Glossiphonia, eat such a large number of snails that they are known as snail leeches.

Mollusca or snails also inhabit our handful of algae, often in as great abundance as the worms and fly larvæ. Most conspicuous among these are the little spiral snails called Annicola, specimens of which vary from to to five mm. in length. The small whell-snails, Planorbis, also abound, and may be represented by several species, one of which, Planorbis hirsutus, may be known by the hairy epidermis covering the shell. Other species of snails may be present, Lymnæa, Physa, Aucylus, Valvata, and perhaps, a few of the small finger-nail shells, Pisidium. Many of the snails in algae are young or immature and later in life migrate to the rocky shores and live during maturity. Such an example is found in Lymnæa catascopium which abounds in algre when from two to six mm. long but is found only on rocky or sandy shores in some lakes when adult.

And so, in our examination of a handful of algae, we find indeed a miniature world of animal life, the careful study of which might occupy our time for many weeks. Only a very few of the many

Chironomous larvæ of astonishing



construct a case of the fine material at the bottom of the water by cementing together grains of silt or sand with the silk-like secretion of their salivary glands. Some of these larvæ are red in color and are known as "blood worms."

As we carefully examine the algae in our study we may chance to observe certain flat objects slowly crawling over the

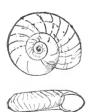
forms of animals living in an algal community have been mentioned. In addition we would find the curious little ostracods in their bivalve shell looking quite like a small mussel; many insect larvæ, such as Mav-flies, the caddisflies, the bugs, hunters in search of their prev competing with the larvæ of beetles; and also the infinite number of flagellate and other Protozoa and the interesting wheel animalcules (Rotatoria).

To intelligently study these lowly creatures of pond, river, and brook it is



THE PLANARIA, AN INTERESTING FLAT WORM AMONG THE WATER PLANTS.

necessary to have at hand a manual that will describe and figure the commoner and more abundant species that we are likely to find in our rambles about the country. For this purpose no work has been better prepared than the recently published volume by Ward and Whippel entitled "Fresh-water Biology."\* Unlike most manuals of this subject the present volume is the result of the labors of a goodly number of America's leading biologists and specialists, no less than twenty-five individuals having contributed to its pages. In this day of specialization it is manifestly impossible for a single biologist to cover in a satisfactory or reliable manner the whole field of biological science, and realizing this limitation the authors of this admirable volume have enlisted the foremost students of the various groups of animals and we thus have in one book an authoritative treatise on each of the great divisions of the subject. The many descriptions of habitat relations (Ecology), of the best means for collecting and preserv-





SOME OF THE COMMON FORMS OF WATER SNAILS.

ing the animals for temporary or permanent examination, and the vast number of good illustrations, the majority of

which were made especially for this volume, render this book an indispensable addition to the shelves of all biologists and also of those who use the microscope for the less serious but none the less interesting recreation of studying these small creatures of the water.

### An Efficient Laboratory.

The Biological Laboratory at Cold Spring Harbor, Long Island, has issued its announcement for the summer of 1018, its twenty-ninth season. The laboratory offers commendable courses of instruction in the study of four-footed animals, birds, microscopic life, insects, etc. While the work in the main contemplates serious technical results, it is equally well adapted to the teacher of biology and to the high school student. We cordially recommend the laboratory. If our readers will write, mentioning this magazine, a pamplilet giving particulars will be sent. dress Dr. Charles B. Davenport, Cold Spring Harbor, Long Island, New York.

Some workers with the microscope have for a long time been marking their slides by writing directly on the glass with a waterproof ink or with a diamond. The latest wrinkle is to use a sharp crystal or carborundum laid between the two halves of a piece of elder pith, the whole wound tightly with a rubber band.

Grasses. trees, shrubs, growing grain, they, too, may need good air as well as human lungs. The deserts are not worthless wastes. You cannot crop all creation with wheat and alfalfa. Some sections must lie fallow that other sections may produce. Who shall say that the preternatural productiveness of California is not due to the warm air of its surrounding deserts? Does anyone doubt that the healthfulness of the countries lying west of the Mississippi may be traced directly to the dry air and heat of the deserts. They furnish health to the human; why not strength to the plant? deserts should never be reclaimed. They are the breathing-spaces of the west and should be preserved forever. —John C. VanDyke in "The Desert."

<sup>\*</sup>Fresh-water Biology. By Henry Baldwin Ward and George Chandler Whippel. John Wiley and Sons, 1918. 1111 pages and 1547 illustrations.



### TEN YEARS.

With the publication of our May number, The Guide to Nature com-

pletes its Tenth Volume.

We are here at the end of a decade—the longest life that any general popular natural history magazine has ever lived in this country. The next longest, and perhaps in many respects the next best in quality, were "The Observer," some seven years of age, and "Popular Science News," both of blessed memory.

A list of all the nature magazines that are no more would be pathetic. I recall at least twenty-five that I have known and loved and whose monthly arrival upon the exchange table I have hailed with delight. Each one represented the honest, genuine, individual effort of some devoted naturalist.

A few were edited because some one wanted to see his name in print as editor, and was inspired more by the spirit of amateur journalism than by a regard for the great Cause of Nature Study. But in the greater number the honesty of purpose made the pathos of the failure more poignant. I sorrowfully admit that in the beginning the same mistake was mine in "The Observer," my first attempt at nature journalism made twenty-eight years ago. The magazine existed for seven years and died a painful death, mourned by many. It nearly broke my journalistic heart as well as my bank account. But "The Observer" spirit never died. I continued my observation not only of nature but of nature journalism. Some experiences have been severe, but they have taught valuable lessons. I would save others from the sorrow of similar experience.

This is the great lesson that I have learned.

Individual effort in publishing a nature magazine sooner or later results in failure. That is true even if the editor and publisher is rich enough to carry it as an expensive pleasure.

Sooner or later that enjoyment palls. Successful nature journalism, indeed success in promoting any great ideal, must be backed by an association or a society. Observe the great success of the "National Geographic Magazine," "American Forestry," "Bird-Lore," "The Nature-Study Review," "Our Dumb Animals," "The American Museum Journal" and several minor yet good and successful magazines supported by an association or a society.

Just here is the reason why The Guide to Nature still persists with three thousand circulation and good advertising patronage: it is published by The Agassiz Association, whose very name is an inspiration and an emblem of all that is good, earnest, true in

the realm of "study nature."

The Agassiz Association in its existence of forty-three years has had several periodicals as its "official organ." THE GUIDE TO NATURE, the only magazine ever owned by The Agassiz Association, has proved its worth by its continuance. The lesson is evident. especially in these days of discarded duplicated or needless effort. Every student and lover of nature will act for efficiency and give the best service by concentrating his efforts within the widespread range of Association effort that has been proved worth while. The Agassiz Association includes all ages and all grades of attainment, the ignorant and the wise, the humble, those of prominence and influence, the poor and the rich. All that desire to learn meet on common ground "to create and increase a knowledge and love of nature" or, as our Charter says, for "the general diffusion of knowledge."

Nature and her gift of buoyant life are overpowering. The joy of mere animal existence, the feeling that it is good to be alive and face to face with Nature's self, drives everything else into the background.—John C. Van Dyke in "The Desert."

"More Spiritual and Less Formal."

These are not the words of a minister nor a poet nor a sentimentalist but of a capitalist, John D. Rockefeller, Jr. In the "Saturday Evening Post" of February 9, Mr. Rockefeller published a remarkable article that goes to the gist of things. This article has been reprinted in a convenient little booklet entitled "The Christian Church. What of Its Future?" He makes the following appeal from which we have quoted the heading of this article:

"What the world craves today is a more spiritual and less formal religion. To the man or woman facing death, great conflict, the big problems of human life, the forms of religion are a hollow mockery, the spirit an impreg-

nable fortress.

"I plead not for a modification of form but for its subordination to the spirit; not for the abolishing of ordinances, but for their voluntary rather than obligatory observance; not that these solemn rites should be set aside, but that they should be entered into as a sacred privilege, an act of loving consecration, rather than submitted to as an enforcible law. So and so only will their real beauty and meaning be understood and their true purpose realized."

With this thesis every sincere, thoughtful person will heartily agree, and many of us will realize the truth of a variety of suggested corollaries. What the world craves now is more reality and less artificiality, not only in religion but in all the acts of daily life. The war is bringing us down to a fundamental basis. We are cutting off extraneous growths and some of the follies of civilization as never be-

fore.

From our point of view the greatest of these advantages is the directing of the thoughts from foolish, frivolous, worthless things to good old Mother Nature. Superficial and pernicious amusements are giving way to work in the garden. The motto of The Agassiz Association "Through Nature to God' is being realized as never before. Earth must become less a place "to devil in" and more of a place to delve in. This is true on the part of all serious minded people. Mr. Rockefeller is right. What he says of the forms of the

Christian Church applies with even greater force to the forms of nature around us. "So and so only will their real beauty and meaning be understood and their true purpose realized."

#### A Wish.

BY HAROLD GORDON HAWKINS, WESTFIELD, MASSACHUSETTS.

There is a little hollow in the mighty hills Where flowers bloom and a tiny brooklet spills

Its foaming cataract in an azure lake.

—Here have I seen the glorious dawnings
break

In golden splendor on the mountain walls, And heard the robin as he sweetly calls In softest warblings to his nesting mate. Ah wondrously fair the spot, early and late. The mellow sunlight tinges all with gold And in the dim twilight from the wood is told

The sweet and lovelorn lyric of the thrush.

Here in this glen, secluded from the rush And endless turmoil of the beaten ways, It is my fondest wish to spend my days, Living with ears attuned to Nature's mighty pealm

And leaving at last the world with that

sweet calm

In face of Death, that she alone can give, So is my wish, simply a wish to L I V E .

We believe that just as France, the great flower-loving nation, has saved the soul of Europe, so the love of nature and all that is good and beautiful in the world and the love of right and justice will save the American people from hysteria and from themselves.—Wallace N. Pierson, Cromwell, Connecticut, in the Hartford Courant.

### The Unseeing.

BY MELICENT ENO HUMASON, NEW BRITAIN, CONNECTICUT.

Uncomprehending eyes that vaguely stare

At lake, at wold, at creatures in the air And witness not, nor wonder what is there.

Uncomprehending eyes that never find A lofty solace for the care-bound mind, Not nobly sightless they, but spiritblind.

Uncomprehending eyes! My plea that

May read some message in the earth and sky,

Unfold some mystery, and question why.

### A Model Association Chapter.

In Chapter No. 1015 of The Agassiz Association, Glenbrook, Connecticut, we have one of our best Chapters, an ideal, really active company of boys The greatest shortcomings of nature study in general are just two: first. sham; second, reliance upon others. There are many who, as related in an editorial some time ago, take their nature study in portions so small that they never come to realize just how actual nature study tastes. It is like Joe Gargery in Dickens' "Great Expectations" when he says to Pip, "I tell you, it is mighty interesting to sit down by the fire and read I-o, Joe." It is within this class that I sometimes hear of a boy, or of a girl for that matter, who has learned one or two constellations, or the names of one or two plants or trees, only to fulfill a requirement. But there is even a larger class that want to get their nature study as they would buy goods at a store.

Many visitors at ArcAdiA, some of them including, I am sorry to say, Chapters of The Agassiz Association come for what we can give them in the way of entertainment or in the satisfying of their curiosity. That is good so far as it goes. We should do our part, we are glad to do our part, but we should not do everything. There is no reason why any Member of The Agassiz Association should depend upon the President of The AA nor upon any of his assistants. The Member should see things in nature for himself. Our eves are no better than those of our voungest Member. We should do our part and others should do theirs. This is what makes the Association. Another class comes to ArcAdiA, sometimes young folks and sometimes older. that from the time they enter the door till they leave are frequent and profuse in their exclamations of "How

you must enjoy all this wonderful work," "I envy you this most delightful of all pursuits." We have heard these words so often that we accept them at their full value and realize just what they mean, which is nothing.

But these errors of omission or of commission have been avoided, perhaps unconsciously, by the boys of our Glenbrook Chapter, and for that reason we are pointing to them as the ideal. They can bear a little praise, but we are not praising them for the pleasure of praising but to relate some of the good things they have done to guide and stimulate others.

The Chapter arrived at ARC ADIA in the early evening with packages containing a supply of edibles. We served cocoa and enjoyed a really social time around the big table and several smaller ones in the Welcome Reception Room. When the edibles and dishes had been cleared away, the boys prepared for real Association work. Each told what he had seen and arrangements were made for even more systematic seeing by appointing committees for the various departments of nature. There was hardly a Member present who had not made good original observations, and evidently knew how to relate those observations in an inspiring and convincing manner. Not a boy boasted of the number of miles that he had walked but in a charmingly unconscious manner, and all the more charming because it was unconscious, showed that he did not care whether he had been ten rods or twenty miles provided he had seen something to tell. Not one showed a disposition to sit back in his chair and be entertained. He was willing to do his bit for the good of all.

Let it be said incidentally that this Chapter has one of the best leaders that I have ever known, Mr. Halbert

C. Phillips of the Stamford High School, who is not only a skillful teacher but a genial and royal good fellow. He inspires each boy to do his part on the strictly university method, which is that of original research. The test of good leadership is that it leads each member of the organization to do his own part. It is here that Mr. Phillips has achieved remarkable success. When one is with this Chapter, he feels that Mr. Phillips is no more and no less than any one else. That is the spirit of The AA. Every one should be a chief, leader and teacher.

Let me mention one incident in connection with this Chapter. Late in the evening I referred to the fact that for two or three years I had advertised in "The Stamford Advocate" and elsewhere for fairy shrimps (Branchipus). These are found only in the icy water of early spring. For three years I had failed to find them. One boy, Peter Zwart, immediately "sat up and took His eyes glowed with ennotice." thusiasm. "You want fairy shrimps, You shall have them." do vou? made me think of the man that carried the turtle eggs to Agassiz and was out before sunrise to get them and traveled forty miles, arriving at Agassiz's home to see the grand old Professor hurry down the stairs in his night clothes and hear him say, "Let him in, let that man in; he has my turtle eggs." next morning the telephone bell rang, and I heard a voice say, "I have the fairy shrimps and will deliver them on the next trolley car." That is what I call doing things, that is what I call being an ideal Member of The Agassiz Association.

### Our Glenbrook Chapter.

FROM THE STAMFORD ADVOCATE.

Monday night, March 25, about twenty boys of the Glenbrook Chapter of The Agassiz Association went to ARCADIA, Sound Beach, where they entertained and were entertained by Dr. Bigelow. The boys left Glenbrook about 4:45, and stayed in Sound Beach until 9:45. Halbert C. Phillips, who is the head of the Glenbrook Chapter, joined the boys at Arc \DiA just in time for supper. Miss Bigelow had made cocoa enough to go the rounds three times, and this, with the lunches the fellows had taken with them, made

a pretty substantial supper.

Dr. Bigelow expressed his satisfaction at the work the boys had been doing, but said that they weren't doing all they could, because they weren't organized fully enough. He said that the chapter ought to be working in union with the people of Glenbrookthat the people should co-operate so well with the boys that every little unusual thing that turned up in the line of nature study would be reported to some member of the Association who in turn would report to headquarters—

ArcAdiA and Dr. Bigelow.

It was with the end in view of systematizing all the nature-study work that he suggested that the President of the Association appoint committees to take up and investigate definite lines of study. The committee to study birds are Erastus Phillips, Stewart Hoskins, Donald Evers, James Danver; committee on flowers and minerals, Geer Morton, Laddie King, Robert Bowes; committee for the observation of shrubs and trees, Alan Hoskins, Richard Walz, John Morton; for the study of salamanders and all pond life, Howard Lee, Lawrence Griswold. Henry Zwart, Peter Zwart; committee on stars, Harry Hoskins, Abbott Andrews, Harold Austin and George Smock. The last named committee has a special line of work set out for it, and cannot benefit greatly by outside information, but as to all the others well, the best thing you can do would be to cut this out and paste it in some convenient spot as reference when you want to find out whom to telephone to if you discover a new specimen of bird, or a flower that has never been seen before in Glenbrook.

The boys on the committees are out to work, and work they will, with the object in view of having something good to report at the next meeting at Dr. Bigelow's in June, but they cannot work alone. It is up to the citizens of Glenbrook to help put the town on the map, as all unusual results will be printed in The Guide to Nature and other magazines which will be read by people all over the United States. fore coming home, the boys heard an interesting talk on botany from Mrs. Blakely, who is studying that special line of nature at ArcAdiA.

### Additions to Our Membership.

### Corresponding:

Mr. Nels Grill, Caribou, Maine.

Mrs. Florence Earle Payne, Gouverneur, New York.

Mrs. Marvin Clarke Quillian, Macon, Georgia.

Master Thomas McClary, New York City.

### Sustaining:

Mr. Nathan M. Clark, Riverside, Connecticut.

Mr. George E. Vincent, Greenwich, Connecticut.

Mr. Charles H. Lounsbury, Stamford, Connecticut.

Mr. Richard H. Cunningham, Stamford, Connecticut.

Mr. Max Kattwinkel, Stamford, Connecticut.

Mr. Frank S. Fay, Meriden, Connecticut.

Mr. Charles Edward Spicer, Adams, New York.

Mr. Francis A. Bartlett, Stamford. Connecticut.

Mr. Oakes Ames, North Easton, Massachusetts.

Mr. John Wanamaker, Philadelphia, Pennsylvania.

# School and College Pennants in our Welcome Reception Room.

The Agassiz Association is represented directly or indirectly in every school, college and university in the United States. In some of these we have Members, in others we have Chapters, in still others we have friends who are cooperating in our advisory council or are otherwise carrying on the work, while still others, if not directly active along these lines, are indirectly interested in creating and increasing a knowledge and love of nature in the name of that great master scientist, Louis Agassiz.

Here, at Arc.Apr.A, the Home of The Agassiz Association, we have a beautiful Welsome Reception Room where Chapters, Members, students and visitors are entertained. It is well furnished with a fine optical projection equipment, a piano, a present from friends, and a magnificent five hundred dollar Diamond Disc phonograph, a

present from Thomas A. Edison. The room also contains a fireplace made of minerals, the gift of other loving and appreciative friends.

We have been favored with several school and college pennants that now are pretty well distributed as a frieze around the room. These pennants came from the following institutions:

Harvard University: Harvard Natural History Society, Cambridge, Massachusetts.

Yale University: Professor Wesley R. Coe, Osborn Zoological Laboratory, New Haven, Connecticut.

Columbia University: Frank D. Fackenthal, Secretary of the University, New York City.

Cornell University: Agassiz Club of

Cornell, Ithaca, New York.

Leland Stanford Junior University: Dr. David Starr Jordan, Chancellor, Stanford University, California.

Purdue University: Dean Stanley

Coulter, Lafavette, Indiana.

Wesleyan University: Professor William North Rice, Middletown, Connecticut.

Syracuse University: E. A. Eichstadt, Syracuse, New York.

Wellesley College: Miss Dorothy A. Baldwin, Cambridge, Massachusetts.

Boy Scout Troop Banner: James E. West, Chief Scout Executive, New York City.

Georgia Normal and Industrial College: Professor Edwin Hobart Scott.

Milledgeville, Georgia.

International Young Men's Christian Association College: Agassiz Association Chapter, International Y. M. C. A. College, Springfield, Massachusetts.

University of Wisconsin, University of Virginia and Lawrence (Kansas) High School: Ellis B. Noyes, Portsmouth, Virginia.

Chaminade College: President Brother Francis, Clayton, Missouri.

St. Mary's College and Academy: Mother Superior, Monroe, Michigan.

Academy of the Sacred Heart: Sacred Heart Convent, Detroit, Michigan.

Chatham Episcopal Institute: Miss Elsie A. Fox, Chatham, Virginia.

Massee School: Mr. Massee, Bronx-ville, New York.

Stamford High School: Halbert C. Phillips, Science Teacher, Glenbrook, Connecticut.

Greenwich High School: Miss Pearl A. Bigelow, ArcAdiA: Sound Beach, Connecticut.

Greenwich Academy: Agassiz Association Chapters, Greenwich, Connecticut.

Brunswick School: Brunswick School, Greenwich, Connecticut.

Rosemary Hall, Rosemary Hall, Greenwich, Connecticut.

Johnstown High School: Miss Matilda Krebs, Johnstown, Pennsylvania.

Meriden High School: Agassiz Association Chapter, Meriden, Connecticut.

Wabanaki School: Mrs. Charles Tarbell Dudley, Greenwich, Connecticut.

Larchmont Manor School: Miss Josephine H. Davis, Larchmont Manor, New York.

### "The Momentum of Worthy Activities."

Among the most patriotic bits of sentiment that have come to our desk is this part of an advertisement by The Bausch & Lomb Optical Company.

"May we all work together, then, for the best interests of humanity—first, to win the war; second, to maintain the momentum of all worthy activities in the nation, looking steadily to the day when the war shall cease."

That is squarely to the point. There are just two things to be done. Not only must the country itself be saved, but we must save the good things that go with the country. It takes a broadminded, self-sacrificing patriot to get the full meaning, the adequate point of view into his head and his heart. Many things may be eliminated from this country. It is not necessary to enumerate the evil things. To do that

would be to wound somebody's sensibilities and would accomplish no good, but connected with the elimination of the nonessentials, there is another equally important side to the question so well put by this enterprising and patriotic house. "Maintain the momentum of all worthy activities in the nation." The Bausch & Lomb Optical Company wrote to The Guide to NATURE fairly and frankly that they were disposed to discontinue their advertisement in our magazine because practically the entire plant was turned over to government work. write as follows:

"We have decided to continue the advertisement on the old basis largely for sentimental reasons and the encouragement we may thus lend to your operations. Such advertising as we are still doing in any of our mediums is intended to maintain the good will of our trade and not to secure orders. We have greatly increased our facilities and are working all night in some Departments in the desperate effort to supply some of the government's most important needs in this crisis, and are only embarrassed by most of the outside orders we receive. . . . . We trust vou appreciate our position and wish you and your activities every continued success."

Here is a concern that recognizes that we have something to do besides winning the war. There is a secondary point that should not be lost sight of. It is the spirit manifested by George Washington when, in recounting the terrible problems before the country, he said,

"Promote, then, as an object of primary importance, institutions for the general diffusion of knowledge."

It is practically this advice amplified that is the keystone to the position of this great optical house "to maintain the momentum of all worthy activities of the nation."

## Please remember this educational uplifting work in making your will. Form of Bequest to the Association

I hereby give and bequeath to The Agassiz Association, an incorporated association, having its principal executive office at ArcAdiA, in Sound Beach, in the town of Greenwich, Connecticut, the sum of\_\_\_\_\_\_dollars

### Encourage Our Boys at the Front.

One of the most pleasing and attractive Liberty Bond placards that have come to the attention of this office is that issued by Hammacher, Schlemmer & Company, New York City. It is eleven by twenty-one inches on cardboard and has an attractive setting of the advice:

"Back up our Boys at the Front. Buy Liberty Bonds To-day. The more you own The sooner they'll come home."

Spratt's trophy for the best dog in the 1918 Westminster Kennel Club Show was won by Mr. R. H. Elliott's "Haymarket Faultless."

Mr. M. S. Baldwin, Marbald Kennels, is the winner of Spratt's \$50 Bow for the best brace of any one breed entered and owned by one Kennel at any Show bench or fed by that firm during the year 1917.

I love the little magazine and would not be without it.—Mrs. A. S. Browne, Washington, D. C.

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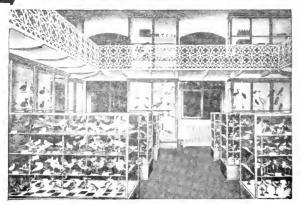
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## L. B. Museum cases



Part of an installation of twenty-eight L.B. bronze frame and plate glass museum cases in the Boston Society of Natural History. The six cases shown in the illustration house part of the bird collection of the museum.

Literature upon request.

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